July 1, 2013

Mr. Qu Qi, P.G.
North Carolina Department of Environment and Natural Resources
Division of Waste Management
1646 Mail Service Center
Raleigh, North Carolina 27699-1646

Report on Remedial Process Modifications at the Seaboard Group II and City of High Point Riverdale Drive Landfill Site in Jamestown, North Carolina

Dear Mr. Qi:

Seaboard Group II and the City of High Point (collectively herein the "Parties") provide you this report explaining the reasons for, and design of, the modifications to the remedial treatment system at the former Seaboard Chemical Corporation facility and closed Riverdale Drive Landfill (collectively herein the "Site"). The Remedial Action Pre-Construction Report for the mechanical treatment systems (PCR) was submitted to North Carolina Department of Environment and Natural Resources (NCDENR) on December 28, 2009. The report was subsequently approved by NCDENR, Division of Waste Management on March 22, 2010.

At this time, the remedial treatment systems at the Site, as described in the approved Pre-construction Report, has been installed and is operational. The automation and irrigation upgrades, as well as most other items that were known to be required for initial startup and testing, were complete during the first quarter of 2013. The Parties are currently in the process of revising, modifying and adding certain components due to unexpectedly high metals concentrations in the leachate.

Reasons for the Modifications

Recently it was determined that the levels of iron and magnesium in the leachate and groundwater were significantly higher during treatment system operation than those detected during earlier testing and used for the process design submitted in the PCR. Neither the advanced oxidation process (AOP^{+}) system nor the phytoremediation system can tolerate the higher metals levels that would have resulted from the higher inlet concentrations to the existing system as proposed in the PCR. The existing Metals Removal Vat was not designed to handle the increase in metals loading. At first, this was thought to possibly be a temporary spike in metal concentrations due to initial system operations. However, was later determined to be an indication of an apparently chronic high level of metals, particularly in the leachate.

Once the system was started up after the automation and irrigation upgrades were complete, samples were collected from all of the leachate collection tanks and certain groundwater

observation wells at the Site. The samples were collected from each leachate tank, the Northern Intermittent Stream (NIS) Sump and Deep River Observation wells (OWDR) -1, OWDR-2, OWDR-3 and OWDR-4. The results of those analyses are presented in the following table.

Table 1 – Initial Sample Results

Parameter	OW-DR1	OW-DR2	OW-DR3	OW-DR4	LCHT-1	LCHT-2	LCHT-3	LCHT-4	LCHT-5	NIS SUMP	Comp	Average*
TDS	976	1030	1430	808	1320	2600	4700	3960	808	1100	2190	1902
TSS	4	26	2.5	4	220	98	36	226	56	94	123	80.86
Nitrate -N	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.11	0.68	<0.10	0.33	0.26	0.3
Nitrite -N	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.11	0.35	<0.10	0.20	<0.10	0.15
Iron, total	8.71	8.52	0.37	4.44	44.90	34.10	34.70	93.80	16.80	44.5	32.50	29.39
Total Mn	8.19	6.44	1.22	7.57	0.335	0.408	0.633	0.445	2.68	4.06	1.55	3.048
Total Mg	92.9	84.5	143.0	78.9	52.1	74.3	61.7	83.9	42.6	58.7	58.6	75.56
Total Na	44.8	43.4	27.5	45.1	197.0	512.0	932.0	853.0	85.2	151.0	404.0	299.55
pH, lab	NA	NA	NA	6.2	6.5	6.6	7.1	7.4	6.2	6.6	7.4	6.75
pH, field	6.6	7.7	6.1	7.3	7.1	7.3	7.5	7.8	7.3	7.5	7.9	7.28

The total metals concentrations in leachate tanks (LCHT) 1 through 5 and the Northern Intermittent Stream (NIS) sump during this sampling event were all considerable higher than the 10 mg/l expected from earlier sampling events such as those collected during the PhotoCat pilot study. The LCHT tanks and NIS sump iron levels averaged 44.8 mg/l of total iron, which is over four times what was anticipated in the system design included in the PCR. The reason for the increase is beyond the scope of this report and undetermined at this time; however, neither the PhotoCat system nor the phytoremediation system can tolerate metals at the determined concentrations.

Therefore, the Parties determined that the amount of sludge generated by this increase in average metals concentration would result in frequent stoppages of the process to remove the metals precipitate residues from the metals removal vat even if it could be modified to remove the metals to levels below the concentrations needed prior to final treatment. Therefore the Parties decided that modifications to the mechanical system to address the need to remove additional metals were required. The modifications are underway at this time and the progress is on schedule to conform to that approved in Technical Memorandum E-7. Once these modifications are complete, the Parties will resume startup testing by rerunning the initial alarm and interlock testing prior to beginning the planned drawdown test. At this time, the Parties believe, and are using best efforts, to be ready for full operation by January 1, 2014.

Modification Design

Pilot Testing

The initial step in the design of the modified process was to conduct a pilot study. The goal of the pilot study performed by the Parties in March and April 2013 was to attempt to determine the effects of fine bubble aeration, pH adjustment, filtration and settling on the combined leachate and groundwater flowing through the treatment system at various stages in the process. This included at the inlet to Lift Station (LS)-1, the inlet to LS-2 and at the outlet of the existing metals vat in the final treatment area.

In determining the most effective resolution to these problems, the Parties referred to work performed much earlier in the remedial action, in support of the Feasibility Study, by ERM-NC, PC. In a report authored by Dr. Richard Brown several methods of iron and other metals control were explored, including sequestration, chelation, ion exchange and aeration. The only method determined to be operationally and economically feasible at the Site was aeration.

In past testing, the concentrations of iron and other metals detected in the combined groundwater and leachate had been reported to be low. During the pilot testing of the advanced oxidation system (AOP), and other testing performed earlier, the concentration of iron, in particular, was indicated to be in the range of 10 to 20 mg/l. Recent testing has determined that, particularly in the leachate, the iron level is much higher, sometimes in the range of 100 to 120 mg/l and averaging approximately 45 mg/L. It was therefore concluded it would be necessary to address the iron and other metals in that process flow to avoid fouling of pipes and equipment. In addition, it would be necessary to remove most of the iron and other metals from the groundwater flow as it enters the system rather than in the main treatment structure to avoid fouling the pipes inside Lift Station 2 (LS-2) and the main treatment structure.

This seemed to require the system design be modified to add aeration at LS-1 and the installation of a new pretreatment process to include a larger filter and an air stripper system to process the combined flow of all groundwater and leachate prior to it entering the main treatment system. It was also determined that this will require a new building, because the floors installed in the existing structures were not capable of supporting the weight of the properly sized filter bodies once they were full of water.

Based upon this information a pilot study was scoped and performed to simulate a proposed process design. This modification would consist of aeration at LS-1, followed by aeration and filtration in a new portion of the pretreatment system prior to the combined flows entering LS-2 for final pretreatment before either being further processed by the $AOP^{+,}$ and discharged to the City of High Point Eastside Wastewater Treatment Plant, or used to irrigate the phytoremediation system on the closed Riverdale Drive Landfill cap.

Pilot Test Procedure

The Parties collected fresh samples of the leachate from the LCHT tanks and the NIS sump, as well as a sample of the groundwater from PWDR-1 (the primary groundwater pumping well), and the RWLFS wells for the purpose of performing design and pilot testing. These samples were composited by the Parties to roughly simulate the composition of the various inlet streams to the treatment system.

1. On March 11, 2013 the laboratory[1] received the following samples:
    - 3 liters of composite from the 6 leachate collection tanks (LCHT1-5, NIS Sump) that flow untreated into LS-1 as leachate; and
    - 3 liters of composite from RWLFS, NIS and the SIS wells which flow untreated into LS-1 as groundwater; and
    - 6 liters of composite from PWDR1 groundwater that flows untreated into the Metals Removal Vat and is the primary groundwater pumping well.

[1] Laboratory as used herein refers to Meritech, Inc. of Reidsville, NC, a NC certified laboratory.

2. Upon receipt the laboratory decanted the PWDR1 water for BOD_5, COD, TSS, TDS, Fe^{++}, Fe^{+++}, TOC, U.S. EPA Method 8260, and 1,4-dioxane testing. (Tracked internally at the laboratory as Sample #1, Initial Groundwater).
3. Also upon receipt, the composite of the leachate samples was combined with the RWLFS, NIS and SIS groundwater, at a ratio of 60% groundwater and 40% leachate to simulate the anticipated composition of the feed. That mixture was then poured off for BOD_5, COD, TSS, TDS, Fe^{++}, Fe^{+++}, TOC, U.S. EPA Method 8260, and 1,4-dioxane testing. (tracked internally at the laboratory as Sample #2).
4. On March 14, 2013 the laboratory split sample #2 into 3 sub-samples, and adjusted the pH of one sample to 7.5-8.0 (7.7 SU actual pH) with 0.2N NaOH (tracked internally at the laboratory as Stage 2 High pH Sample), one sample to 3.5-4.0 (3.5 SU actual pH) using 0.2 N H2SO4 (tracked internally at the laboratory as Stage 2 Low pH Sample), and left the third sample unchanged (7.0 SU actual pH, tracked internally at the laboratory as Stage 2 Unchanged pH Sample).
5. All three Stage 2 samples were then aerated with fine bubble diffusion for two hours using a 1" "airstone manifold apparatus" and an air pump.
6. After aeration, all three Stage 2 samples were allowed to settle for 2 hours.
7. Addition of the Iron Sulfate to the low pH sample to bring the total Iron concentration to approximately 50 mg/L was omitted because total Iron concentration in this mix was found to be higher than 50 mg/L (69.1 mg/L).
8. Stage 2 low pH sample was then titrated with 30% Hydrogen Peroxide at a ratio of 1 part iron per 25 parts hydrogen peroxide to simulate a Fenton's reagent reaction. (Amount was calculated to be 4.7 ml H2O2)
9. Stage 2 low pH sample was slowly mixed for 1 hour, while maintaining the pH between 3.5 and 4.0 (sample did not change pH).
10. The top part of the Stage 2 samples was poured off for the following tests: the high pH sample for parameters- BOD_5, COD, TSS, TDS, Fe^{++}, Fe^{+++}, TOC; the unchanged sample for parameters BOD_5, COD, TSS, TDS, Fe^{++}, Fe^{+++}, TOC; and the low pH sample for BOD_5, COD, TSS, TDS, Fe^{++}, Fe^{+++}, TOC, 8260, and 1,4-dioxane.
11. We then decanted liquid from all Stage 2 samples separately, mixing PWDR1 groundwater into each sample at a ratio of 60% PWDR1 and 40% sample solution, forming three separate Stage 3 samples.
12. All Stage 3 samples were aerated for two hours simulating the fine bubble diffusion again using the 1" airstone manifold apparatus and air pump.
13. After aeration all three samples were filtered through a 50-micron filter media and the filtrate was poured off to test for all parameters BOD, COD, TSS, TDS, Fe^{++}, Fe^{+++}, TOC, U.S. EPA Method 8260, and 1,4-dioxane.

The Parties determined that after the laboratory composited the PWR-1 and RWLFS and SIS samples and aerated the solution, there was little effect on BOD_5 and COD unless they lowered the pH. However at neutral and high pH they did show a marked reduction in iron. Both the unchanged and high pH samples were lower in iron than the low pH sample. Following that through to the Stage 3 sample results the laboratory indicated about the same final concentration whether or not they raised the pH. However, the concentration indicated was

well within the levels that can be managed in the Metals Removal Vat and tolerated by the downstream final treatment systems. See Attachment 1 for the laboratory report and results.

From these results it was determined that running at high pH is the best alternative but, the Parties are not certain why there was little or no reduction in iron indicated as a result of the initial aeration during Stage 2. Regardless of the need to reduce iron it was determined that aeration at the LS-1 inlet should be included in the modified process to eliminate the risks associated with the possibility of methane being present in the leachate. Aeration should also help remove some of the VOCs and cVOCs at that point, as well as help to maintain aerobic conditions regardless of the proportion of leachate mixed into the groundwater or the length of storage in the treatment tanks at LS-1.

Metals Removal Upgrade

The metals removal upgrade consists of adding an aeration tank to the flow path at LS-1. The aeration tank will employ ceramic fine bubble diffusers to aerate the combined leachate and groundwater flow exiting the inlet manifolds in LS-1. It was determined that all of the leachate and groundwater entering the system would be collected in a large (approximately 4,200 gallon) tank that is aerated by ceramic fine bubble diffusion. That tank will overflow into a surge tank inside LS-1 before it is pumped up to the existing LS-2. This piping exists and will simply be revised to direct the flow into the new "Filter Building."

It was determined the "Media Filters" would not adequately handle the flow anticipated. Further investigation determined that the main treatment structure floors would be unable to support filter bodies of the size needed for proper filtration. With properly sized filter bodies, the vessels were estimated to be 4 feet in diameter and 6 feet tall. In round numbers that meant the total weight of a single vessel would be approximately 7,000 pounds.

That lead to the decision the filters and associated equipment needed to be installed in a new 30 by 30 foot metal structure constructed on a concrete pad designed to support the filter bodies, and to provide aeration and filtration of the entire flow of groundwater and leachate prior to its entry into the main treatment structure.

The new Filter Building will receive the flow from LS-1 and mix it with the flow from PWDR-1 and certain SIS wells in an aerated tank to provide a relatively consistent 50 GPM. A vertical flat-bottomed tank with the fine bubble ceramic diffusers will be used for initial mixing and aeration. Aeration at this point will help reduce the VOC and cVOC loading on the air stripper influent thereby improving its efficiency, further oxidize metals and remove any remaining methane prior to it being further distributed throughout the building. The aeration tank will gravity overflow into a equalization tank before it is pumped through a set of 50-micron fixed bed filters designed to process 50 GPM. Those filters will be backwashed through another bag filter to capture the solids down to 50 micron with the liquid being returned to the system for further processing. Solids from the solids filter will be properly characterized and stored, handled and disposed in accordance with the North Carolina regulations.

Effluent from the filters will be sent to the six-tray air stripper which will be relocated to the Filter Building. Effluent from the air stripper will be pumped back into the main treatment structure through a newly installed 3" line inside of LS-2 which will discharge into the Metals

Removal Vat. The remaining process flow will be as described in the PCR. Attachment 2 to this report is a set of drawings showing the proposed revisions, and more detailed information.

Remedial Construction Work Remaining

Due to delays in acquiring the requisite building permit, work on the filtration building was delayed during the second quarter of 2013. All of the equipment with the exception of the tanks is at the site at this time.

The following activities remain to complete the construction and implementation of this modification:

Lift Station-1

Complete except for the installation of the aeration tank.

Lift Station-2

Complete except for the modifications for the filter building that are in progress.

Main Treatment Structure

Complete except for the modifications for the filter building that are in progress.

Filter Building

Building permits were applied for in April and were received on June 10, 2013. We are installing the grounding mat and concrete pad at this time and will proceed from there directly into pouring the pad and erecting the building.

Summary

The remedial activities are now on schedule to be completed by the date approved by NCDENR in TM E-7. Everything known to be necessary to begin the startup and testing of the system is either in the process of being installed, or has been completed, tested and is ready to be placed in service. The system startup testing will resume as soon as the filter building modifications are complete.

This system requires a phased startup in which each phase is followed by a series of tests which, when successfully completed, allows the system to progress to the next phase. The final phase is complete when the system is in full operation processing 50 gallons per minute (GPM) of combined leachate and groundwater. The testing is scheduled to be complete and the system ready for full operation on or about December 31, 2013.

Please contact Mr. Gary D. Babb (919-325-0696) or James C. LaRue (281-431-3571) if there are any questions or comments. Please direct correspondence related to this matter to:

Gary D. Babb, P.G.
Seaboard Group II and City of High Point
c/o Babb & Associates, P.A.
P.O. Box 37697
Raleigh, NC 27627.

Communications via electronic mail should be directed to gbabb@nc.rr.com and jlarue@swenv.com.

Respectfully,

Seaboard Group II and City of High Point

James C. LaRue
Seaboard Group II

Gary D. Babb, P.G.
City of High Point

cc Amos Dawson, Esq. Counsel
Chris Thompson - City of High Point
Randy Smith - Seaboard Remediation Trust
Jackie Drummond – NCDENR

Attachment 1

Attachment 2

BISON STEEL BUILDINGS, INC.

ACCREDITED

BUILDING SPECIFICATIONS

The manufacturer is not responsible for the concrete foundation design. The structure under this contract has been designed and detailed for the loads and conditions stipulated in the contract and shown on these drawings. Any alterations to the structural system or removal of any component parts, or the addition of other construction materials or loads must be done under the advice and direction of a registered architect, civil or structural engineer. The manufacturer will assume no responsibility for any loads not indicated.

This manufactured building is designed with the manufacturer's standard design practices which are based on pertinent procedures and recommendations of the following organizations and codes :

- –American Institute of Steel Construction "Specification for the design fabrication and erection of structural steel for buildings" 13th edition.
- –American Iron and Steel Institute "Specification for the design of cold formed steel structural members" 2007 edition.
- –American Welding Society "Structural Welding Code" AWS D1.1
- –Metal Building Manufacturers Association "Specification for the design fabrication and erection of the structural system" most current edition.

Material properties of steel plate and sheet used in fabrication of primary rigid frames and all primary structural framing members (other than cold–formed sections) conform to ASTM A–529 or A–572 all with a minimum yield point of 55 KSI.

Material properties of cold formed light gage steel members conform to the requirements of ASTM A–653, with a minimum yield point of 55 KSI

High strength bolts and their installation shall conform to ASTM specification A–325 and are designed as bearing type connections with threads included in the shear plane. All high strength bolts are to be installed to the "Snug–Tight" condition as defined by the RCSC Specification for Structural Joints Using A325 or A490 Bolts, 2004 Edtion, section 8.1, unless noted otherwise. Crane Building's Rigid Frame shall be installed in accordance with "Turn–of–Nut Pretensioning" per section 8.2.1. Bolts in standard holes do not require washers per section 6.

All primary structural members except bolts and fasteners shall receive one coat of Iron Oxide inhibitive primer.

Shop and field inspections and associated fees are the responsibility of the contractor, unless stipulated otherwise.

CONTRACTOR RESPONSIBILITIES

The contractor must secure all required approvals and permits from the appropriate agency as required.

Approval of the manufacturer's drawings and calculations indicate that the manufacturer has correctly interpreted and applied the requirements of the contract drawings and specifications. (AISC 303–05 Code of Standard Practice)

Where discrepancies exist between the manufacturer's structural steel plans and the plans for other trades, the structural steel plans shall govern. (Section 3.3 AISC 303–05 Code of Standard Practice)

Design considerations of any materials in the structure which are not furnished by the manufacturer, are the responsibility of the contractor and engineers other than the manufacturer's engineering, unless specifically indicated.

The contractor is responsible for all erection of steel and associated work in compliance with the manufacturer's "For Construction" drawings.

Temporary supports, such as guys, braces, flashwork or other elements required for the erection will be determined and furnished and installed by the erector. (Section 7 AISC 303–05 Code of Standard Practice)

It is the contractors responsibility to apply or observe all pertinent safety rules and regulations, as per OSHA standards as applicable.

The Contractor is responsible for the verification of all shipments received. Any "external" damage or shortages must be noted on all copies of the bill of lading and one copy is to be retained for your records. Failure to do so will make it impossible for the factory to honor any claim. NO EXCEPTIONS!!!

DESIGN LOADING

This structure is designed utilizing the loads indicated and applied by the : NCBC 2012

It is the contractor's responsibility to confirm that these loads comply with the requirements of the local building department.

Specific loads : (See structural calculations and foundation reactions.)

20	PSF Live Load
	LL Reduction Allowed : ☒ Yes ☐ No
15	PSF Ground Snow Load
1.2	Thermal Factor (Ct)
1.0	Snow Exposure Factor (Ce)
90	MPH Wind Load Exposure B (If applicable)
2.2	PSF Dead Load (Metal Bldg. Weight – Purlins, Panels, Etc.)
1	PSF Collateral Load
II	Occupancy Category (I_w= 1.00 I_s= 1.00 I_e= 1.00)

SEISMIC DATA :

1) Mapped Spectral Acceleration for Short Period, Ss 0.218
2) Site Coefficient, Fa 1.60
3) Seismic Design Category = B
4) Site Class = D
5) Basic Structural System and Seismic Resisting System Ordinary Moment Frame of Steel
6) Frames: R = 3.00
7) Cables: R = 3.00
8) Analysis Procedure = Equivalent Lateral Force

DRAWING INDEX

These Drawings are for :

☐ Construction ☐ Approval *
☒ Permit ☒ Anchor Bolts & Reactions

* Approval orders must be released for fabrication within thirty (30) calendar days after the submittal drawings are issued or they will be subject to any current price increases. Special attention should be given in approving dimensions and/or details. Please verify requested dimensions by indicating 'OK'.

Building is manufactured by STEEL BUILT CORPORATION. STEEL BUILT CORPORATION is a fabricator approved by the following agencies.

1. QUASAR/CWB GROUP – CAN/CSA A660 Certificate # STEBUO
2. INTERNATIONAL ACCREDIATION SERVICE, INC. Fabricator Inspection Program FA – 446
3. City of Houston Approved Fabricator Registration Number – 759
4. City of LA Approved Fabricator Type I FABRICATOR LICENSE NUMBER – #2091

Engineering Seal

This certification covers parts manufactured and delivered by the manufacturer only, and excludes parts such as doors, windows, foundation design and erection of the building.

PROFESSIONAL ENGINEER

DSN: DAZ	DWN: HTS	REV:	
DET:	CHK:	REVISIONS	
		NO.	DATE

DRAWINGS COVER SHEET

CUSTOMER :
SEABOARD REMEDIAL ACTION TRUST FUND
GREENSBORO, NC
GUILFORD COUNTY

BISON STEEL BUILDINGS, INC.
2619 COON RAPIDS BLVD NW
MINNEAPOLIS, MN

SCALE:	DATE:	JOB NO:	SHT. NO:
NOT TO SCALE	3/18/13	16927	CS-1

NOTICE

Be advised that all shipments are via outside trucking companies and are signed for in good condition and completeness at the pick–up location by the driver.

"No claim will be honored" unless the following procedures have been followed:

AT TIME OF RECEIPT: At the delivery point the driver is required to provide you with a bill of lading which lists and illustrates all bulk items to be recieved. Any "external" damage or shortage must be noted on all copies of the bill of lading and one copy is to be retained for your records. Failure to do so will make it impossible for the factory to honor any claim.
NO EXCEPTIONS!!!

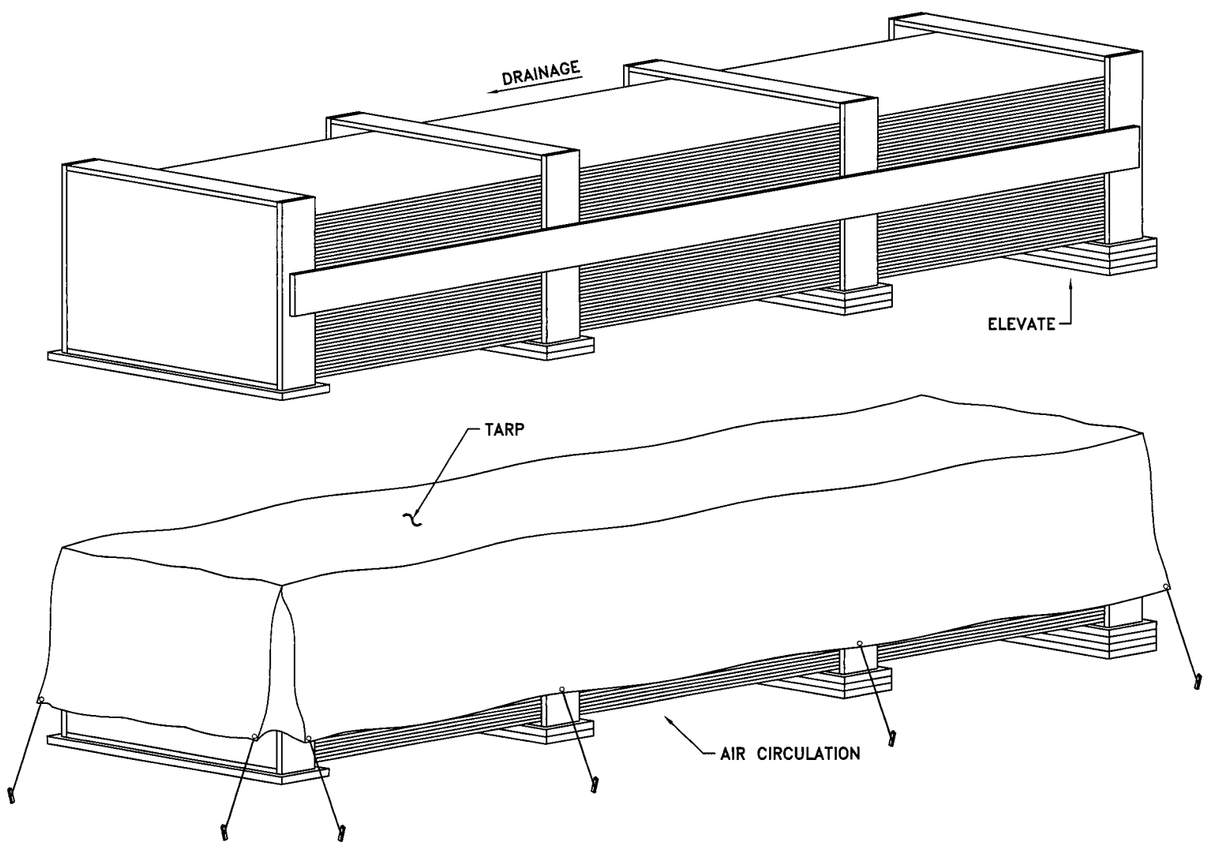
CUSTOMERS DETAILED INVENTORY CHECK: (SHAKE–OUT) It is a factory required policy that the customer recieves a detailed shipping list (packing list) that specifies all included quantities of individual parts. Valid concealed shortages must be reported to the factory within Valid 30 calender days NO EXCEPTIONS!!! The driver does not have to be present for your inventory confirmation.

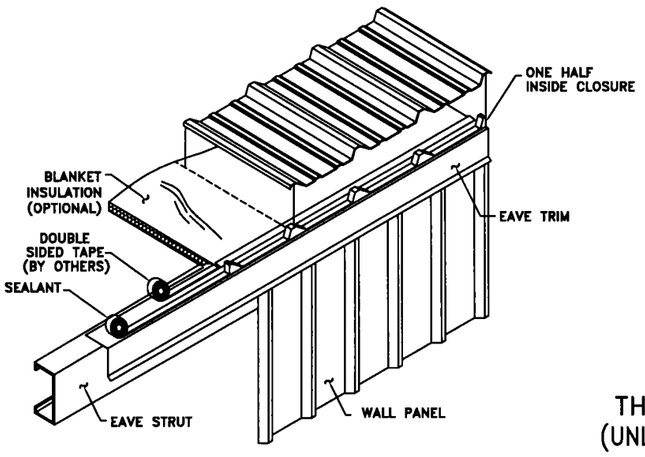
SPECIAL NOTE #1: Overhead doors, windows and service doors are shipped in cardboard boxes. It is required that they be opened to insure that the trucker's chains have not damaged the edges. If so, it must be noted on the bill of lading.

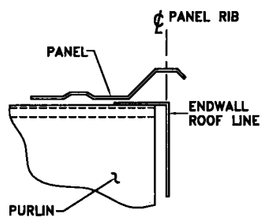
SPECIAL NOTE #2: PERMIT DRAWINGS are NOT to be used for construction purposes. Dimensions and details on permit drawings may vary with construction drawings. Use construction drawings ONLY for the erection of your building.

NOTICE

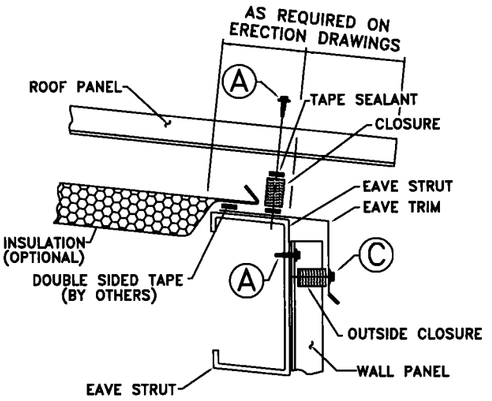
If water is allowed to remain on or in bundles of painted or coated parts for extended periods of time, degradation will occur. The end result is shorter material life due to corrosion. Therefore, upon receipt of a job, all bundles of primed parts should be stored at an angle to allow any trapped water to drain away and permit air circulation for drying. Separate the panels to allow air to circulate between each panel. If environmental conditions are such, tarps should be used to protect materials. Puddles of water should not be allowed to collect and remain on columns or rafters for the same reason.







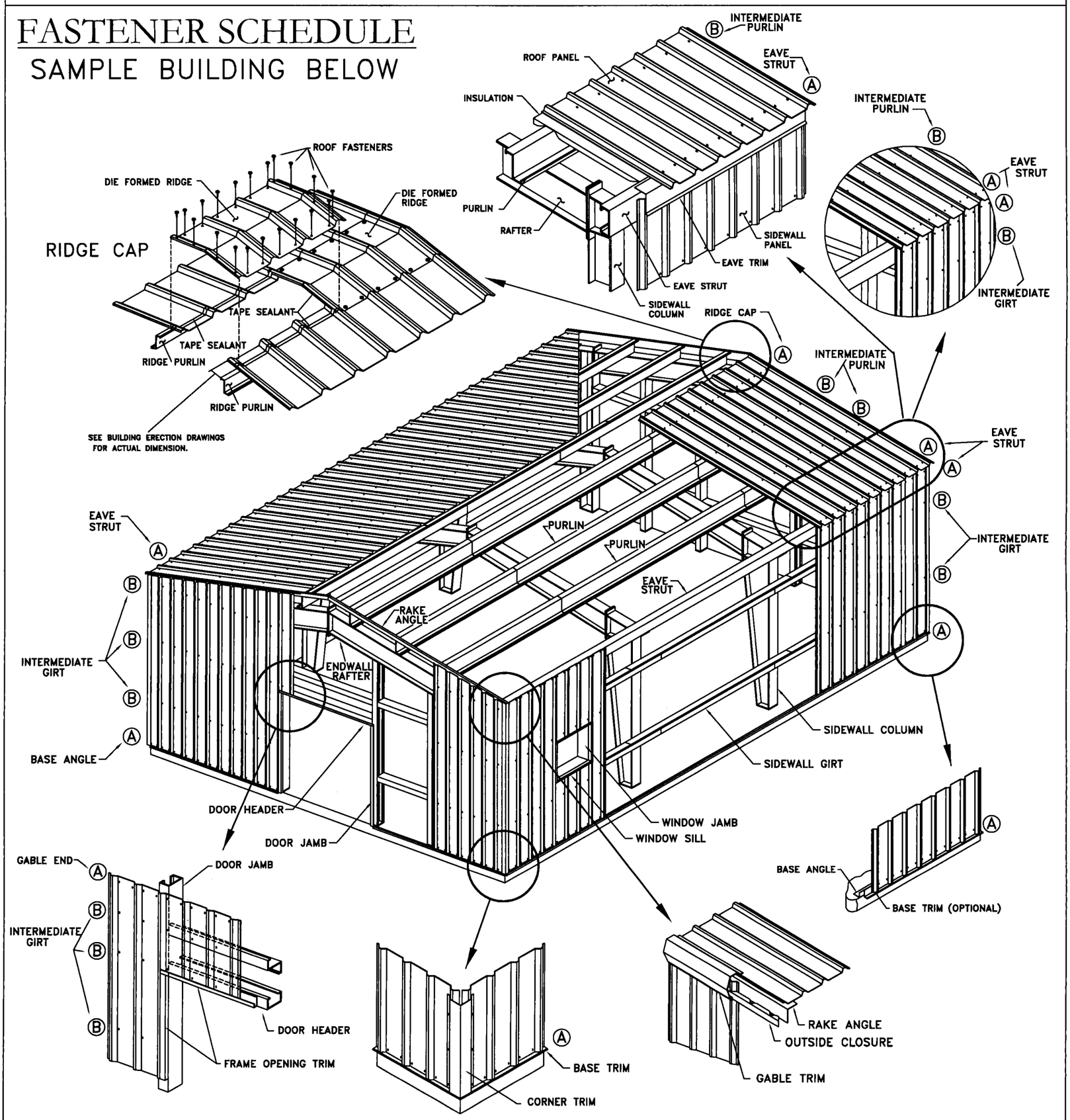
INSTALLATION OF
THE FIRST ROOF PANEL
(UNLESS NOTED ON DRAWINGS)



SECTION AT EAVE

FASTENER SCHEDULE

SAMPLE BUILDING BELOW



DETAIL: A

Ⓐ FASTENER PATTERN
AT BASE ANGLE, EAVE STRUT, RIDGE CAP
& INTERMEDIATE PANEL LAPS

DETAIL: B

Ⓑ FASTENER PATTERN
AT INTERMEDIATE PURLIN OR GIRT OR LINER PANEL

DETAIL: C

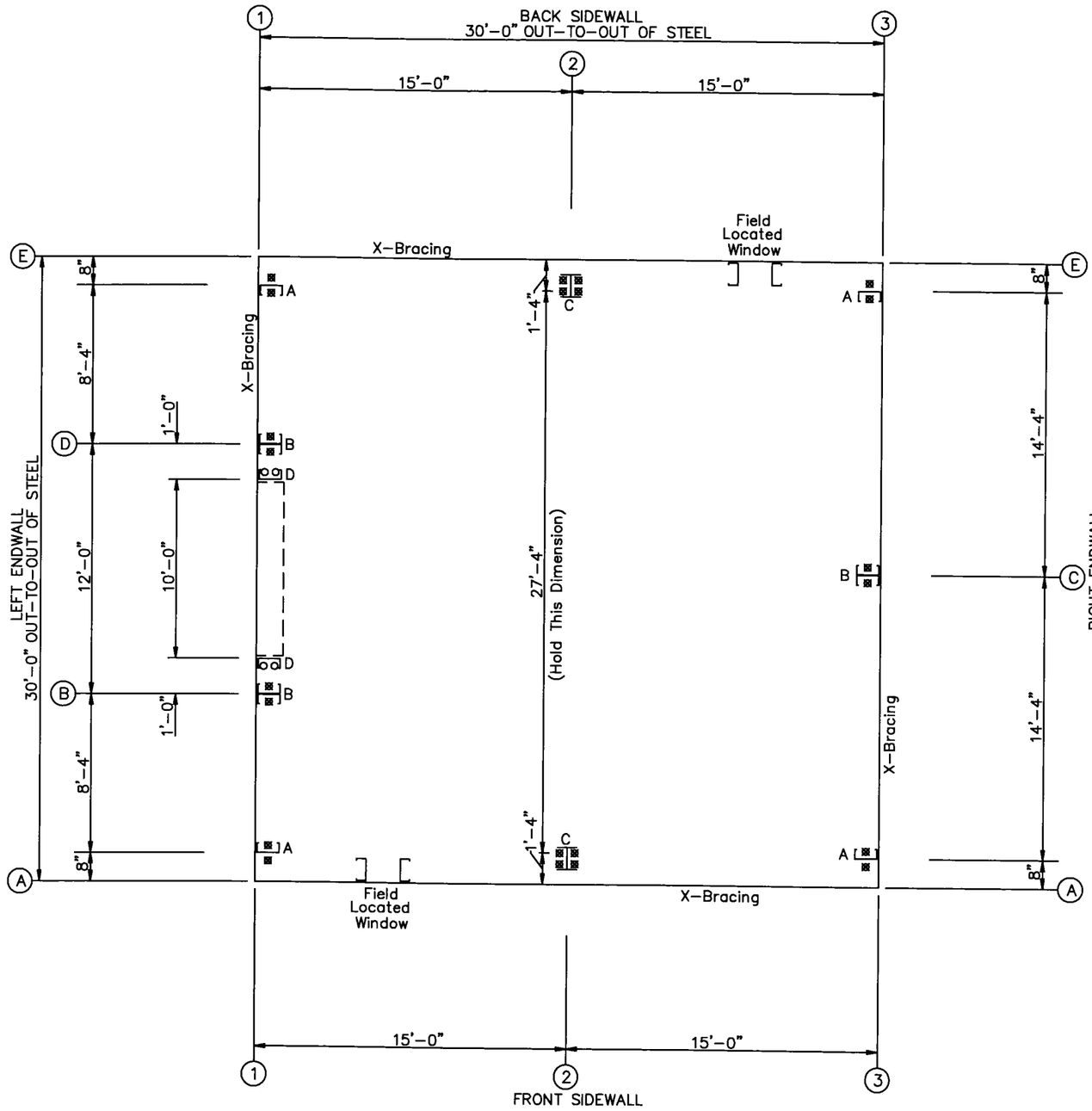
Ⓒ STITCH FASTENER
#14x7/8"
12" ON CENTER

DATE: 1/10/05

DWG NO: CS-2

o Dia= 1/2"

⊠ Dia= 3/4"

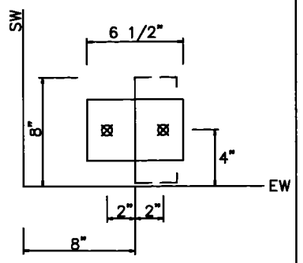


ANCHOR BOLT PLAN

NOTE: All Base Plates @ 100'-0" (U.N.)

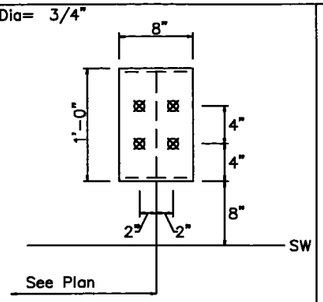
BISON STEEL BUILDINGS, INC.		SEABOARD REMEDIAL ACTION TRUST FUND	
City: MINNEAPOLIS State:MN		City: GREENSBORO	State:NC
Designer: DAZ	Date: 3/18/13	Drafter: HTS	Date: 3/18/13
Detailer:	Date:	Office:	Job No.: 16927
Checker:	Date:	Office:	
ANCHOR BOLT PLAN			Sht. E1 of 12

Dia= 3/4"



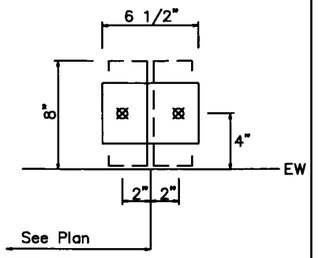
DETAIL A

Dia= 3/4"



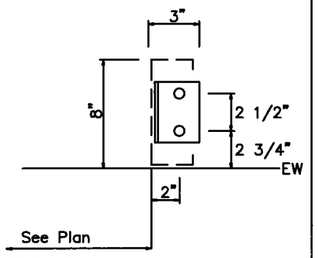
DETAIL C

Dia= 3/4"



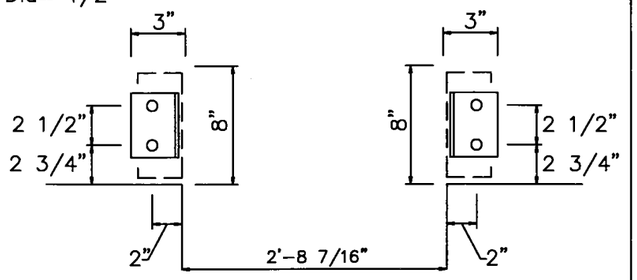
DETAIL B

Dia= 1/2"



DETAIL D

Dia= 1/2"



DETAIL AT FIELD LOCATED WINDOW OPENING

LOAD CASES

WIND_L1 = WIND LOAD FROM LEFT CASE 1
WIND_R1 = WIND LOAD FROM RIGHT CASE 1
WIND_LN1 = LONGITUDINAL WIND CASE 1

SEISMIC_L = SEISMIC LOAD FROM LEFT
SEISMIC_R = SEISMIC LOAD FROM RIGHT
SEISMICLN = LONGITUDINAL SEIMIC LOAD

F1UNB_SL_L = FRAME 1 UNBALANCED SNOW LEFT SIDE
F1UNB_SL_R = FRAME 1 UNBALANCED SNOW RIGHT SIDE
F1CRANE 1 = FRAME 1 CRANE LOAD IN POSITION 1

DRIFT = SNOW DRIFT LOAD
SLIDE = SLIDE SNOW LOAD

NOTES FOR REACTIONS

Building reactions are based on the following building data:

Width (ft)	=	30
Length (ft)	=	30
Eave Height (ft)	=	10 / 10
Roof Slope	=	4.0:12 / 4.0:12
Dead Load (psf)	=	2.200
Collateral Load (psf)	=	1
Roof Live Load (psf)	=	20.00
Roof Snow Load (psf)	=	12.6
Wind Speed(mph)	=	90
Wind Code	=	NCBC 2012
Wind Exposure	=	B
Closed/Open	=	Closed
importance - Wind	=	1.00
importance - Seismic	=	1.00
Seismic Design Category	=	B
Seismic Coeff (Fa*Ss)	=	0.349

Load Combinations

DL+CL+(LL or SL)
DL+CL+WL
DL+CL+0.75WL+0.75(LL or SL)
DL+0.75(0.7SEIS)+0.75(LL or SL)
0.6DL+WL
0.6DL+0.7SEIS

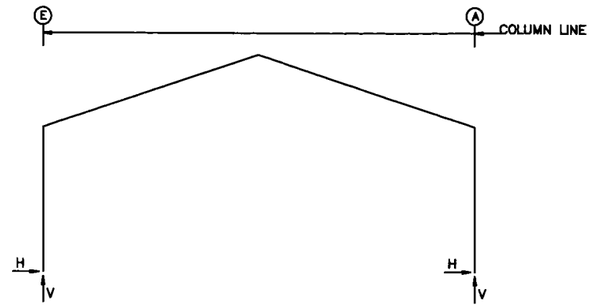
GENERAL NOTES

1. FOUNDATION DESIGN AND CONSTRUCTION ARE NOT THE RESPONSIBILITY OF THE BUILDING MANUFACTURER.
2. THE BUILDING REACTION DATA, REPORTS THE LOADS WHICH THIS BUILDING PLACES ON THE FOUNDATION.
3. THE SPECIFIED ANCHOR BOLT DIAMETER ASSUMES ASTM A307. ANCHOR BOLT MATERIAL OF EQUAL DIAMETER MEETING OR EXCEEDING THE STRENGTH REQUIREMENTS SET FORTH ON THESE DRAWINGS MAY BE UTILIZED AT THE DISCRETION OF THE FOUNDATION DESIGN ENGINEER.
4. ANCHOR BOLTS TO BE SUPPLIED BY OTHERS. ANCHOR BOLT EMBEDMENT LENGTH SHALL BE DETERMINED BY THE FOUNDATION ENGINEER.
5. ANCHOR BOLT PROJECTION ABOVE CONCRETE FINISHED SURFACE TO BE 3" UNLESS OTHERWISE NOTED BY FOUNDATION DESIGNER.
6. ANCHOR BOLTS SHALL BE ACCURATELY SET TO A TOLERANCE OF +/- 1/8" IN ELEVATION AND LOCATION.
7. THE ANCHOR BOLT LOCATIONS PROVIDED BY THE METAL BUILDING MANUFACTURER MAY NOT SATISFY ANCHOR BOLT CONCRETE EDGE DISTANCE REQUIREMENTS DEPENDING ON THE DETAILS OF FOUNDATION DESIGN. IT IS THE RESPONSIBILITY OF THE FOUNDATION DESIGN ENGINEER TO MAKE SURE THAT SUFFICIENT CONCRETE EDGE DISTANCE IS PROVIDED IN THE FOUNDATION DESIGN.
8. MINOR FIELD WORK OF STRUCTURAL, SECONDARY AND PANEL/TRIM ITEMS MAY BE NECESSARY TO ENSURE PROPER FIT. SUCH WORK IS CONSIDERED A NORMAL PART OF METAL BUILDING ERECTION. WE WILL NOT HONOR BACKCHARGES FOR MINOR FIELD WORK.
9. THIS DRAWING IS NOT TO SCALE.

BUILDING BRACING REACTIONS

Wall Loc	Wall Line	Col Line	± Reactions (k) Wind Horz	Wind Vert	Seismic Horz	Seismic Vert	Panel Shear (lb/ft) Wind	Seis
L_EW	1	E,D	0.8	1.1	0.2	0.2		
F_SW	A	2,3	0.9	0.5	0.3	0.2		
R_EW	3	A,C	0.8	0.7	0.2	0.1		
B_SW	E	2,1	0.9	0.5	0.3	0.2		

FRAME LINES: 2



RIGID FRAME: ANCHOR BOLTS & BASE PLATES

Frm Line	Col Line	Anc. Bolt Qty	Bolt Dia	Base Plate (in) Width	Length	Thick	Grout (in)
2	E	4	0.750	8.000	12.00	0.500	0.0
2	A	4	0.750	8.000	12.00	0.500	0.0

RIGID FRAME: BASIC COLUMN REACTIONS (k)

Frame Line	Column Line	Dead Horiz	Dead Vert	Collateral Horiz	Collateral Vert	Live Horiz	Live Vert	Snow Horiz	Snow Vert	Wind_Left1 Horiz	Wind_Left1 Vert	Wind_Right1 Horiz	Wind_Right1 Vert
2	E	0.3	1.0	0.1	0.3	1.4	4.2	1.2	3.5	-2.0	-3.3	0.8	-2.0
2	A	-0.3	1.0	-0.1	0.3	-1.4	4.2	-1.2	3.5	-0.8	-2.0	2.0	-3.3

Frame Line	Column Line	Wind_Left2 Horiz	Wind_Left2 Vert	Wind_Right2 Horiz	Wind_Right2 Vert	Wind_Long1 Horiz	Wind_Long1 Vert	Wind_Long2 Horiz	Wind_Long2 Vert	Seismic_Left Horiz	Seismic_Left Vert	Seismic_Right Horiz	Seismic_Right Vert
2	E	-2.2	-2.0	0.6	-0.7	-0.2	-3.5	-0.2	-2.3	-0.1	-0.1	0.1	0.1
2	A	-0.6	-0.7	2.2	-2.0	0.2	-3.5	0.2	-2.3	-0.1	0.1	0.1	-0.1

Frame Line	Column Line	Seismic_Long Horiz	Seismic_Long Vert	F1UNB_SL_L Horiz	F1UNB_SL_L Vert	F1UNB_SL_R Horiz	F1UNB_SL_R Vert
2	E	0.0	-0.5	1.1	3.7	1.1	2.2
2	A	0.0	-0.5	-1.1	2.2	-1.1	3.7

ENDWALL COLUMN: BASIC COLUMN REACTIONS (k)

Frm Line	Col Line	Dead Vert	Collat Vert	Live Vert	Snow Vert	Wind_Left1 Horz	Wind_Left1 Vert	Wind_Right1 Horz	Wind_Right1 Vert	Wind_Left2 Horz	Wind_Left2 Vert	Wind_Right2 Horz	Wind_Right2 Vert	Wind Press Horz
1	E	0.1	0.0	0.4	0.2	0.4	-1.0	0.0	0.4	0.8	-1.5	0.0	0.9	-0.2
1	D	0.4	0.1	1.9	1.2	0.0	-0.5	0.4	-1.5	0.0	0.0	0.8	-2.1	-0.7
1	B	0.4	0.1	1.9	1.2	0.0	-0.7	0.0	-1.2	0.0	-0.5	0.0	-1.3	-0.7
1	A	0.1	0.0	0.4	0.2	0.0	-0.5	0.0	-0.3	0.0	-0.6	0.0	-0.2	-0.2

Frm Line	Col Line	Wind Suct Horz	Wind Long1 Vert	Wind Long2 Vert	Seis_Left Horz	Seis_Left Vert	Seis_Right Horz	Seis_Right Vert	E1UNB_SL_L Horz	E1UNB_SL_L Vert	E1UNB_SL_R Horz	E1UNB_SL_R Vert
1	E	0.3	-0.3	-0.2	0.5	-0.7	0.0	0.9	0.0	0.2	0.0	-0.1
1	D	0.8	-0.9	-0.5	0.0	0.7	0.5	-0.9	0.0	1.6	0.0	0.7
1	B	0.8	-0.9	-0.5	0.0	0.1	0.0	-0.1	0.0	0.7	0.0	1.6
1	A	0.3	-0.3	-0.2	0.0	-0.1	0.0	0.1	0.0	-0.1	0.0	0.2

Frm Line	Col Line	Dead Vert	Collat Vert	Live Vert	Snow Vert	Wind_Left1 Horz	Wind_Left1 Vert	Wind_Right1 Horz	Wind_Right1 Vert	Wind_Left2 Horz	Wind_Left2 Vert	Wind_Right2 Horz	Wind_Right2 Vert	Wind Press Horz
3	A	0.2	0.1	1.2	0.7	0.4	-1.2	0.0	-0.2	0.8	-1.5	0.0	0.2	-0.4
3	C	0.4	0.1	2.2	1.4	0.0	-0.7	0.4	-1.6	0.0	-0.3	0.8	-2.0	-1.1
3	E	0.2	0.1	1.2	0.7	0.0	-0.7	0.0	-0.8	0.0	-0.8	0.0	-0.8	-0.4

Frm Line	Col Line	Wind Suct Horz	Wind Long1 Vert	Wind Long2 Vert	Seis_Left Horz	Seis_Left Vert	Seis_Right Horz	Seis_Right Vert	E2UNB_SL_L Horz	E2UNB_SL_L Vert	E2UNB_SL_R Horz	E2UNB_SL_R Vert
3	A	0.5	-0.7	-0.4	0.5	-0.4	0.0	0.6	0.0	0.8	0.0	0.2
3	C	1.2	-1.0	-0.6	0.0	0.4	0.5	-0.6	0.0	1.3	0.0	1.3
3	E	0.5	-0.7	-0.4	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.8

ENDWALL COLUMN: ANCHOR BOLTS & BASE PLATES

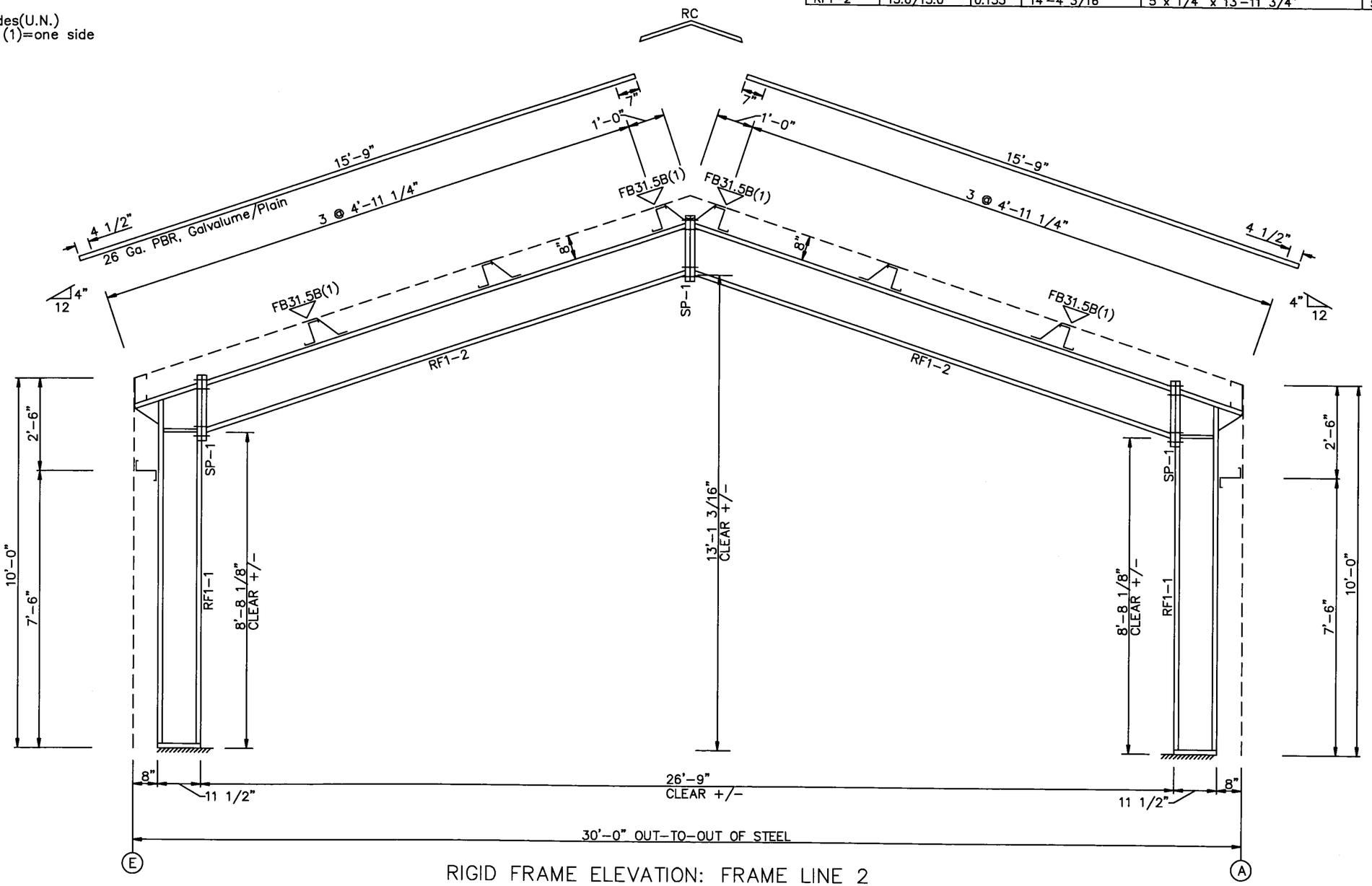
Frm Line	Col Line	Anc. Bolt Qty	Bolt Dia	Base Plate (in) Width	Length	Thick	Grout (in)
1	E	2	0.750	6.500	6.000	0.188	0.0
1	D	2	0.750	6.500	6.000	0.188	0.0
1	B	2	0.750	6.500	6.000	0.188	0.0
1	A	2	0.750	6.500	6.000	0.188	0.0
3	A	2	0.750	6.500	6.000	0.188	0.0
3	C	2	0.750	6.500	6.000	0.188	0.0
3	E	2	0.750	6.500	6.000	0.188	0.0

BISON STEEL BUILDINGS, INC.		SEABOARD REMEDIAL ACTION TRUST FUND	
City: MINNEAPOLIS	State: MN	City: GREENSBORO	State: NC
Designer: DAZ	Date: 3/18/13	Drafter: HTS	Date: 3/18/13
Detailer:	Date:	Office:	Job No.: 16927
Checker:	Date:	Office:	
ANCHOR BOLT DETAILS & REACTIONS			Sht. E2 of 12

SPLICE BOLT TABLE						
Mark	Qty Top	Bot	Int	Type	Dia	Length
SP-1	4	4	0	A325T	0.625	2.25

MEMBER TABLE					
Mark	Web Depth Start/End	Web Plate Thick	Web Plate Length	Outside Flange W x Thk x Length	Inside Flange W x Thk x Length
RF1-1	11.0/11.0	0.135	9'-9 1/4"	5"x 1/4" x 9'-5 1/2" 5"x 1/4" x 1'-8 3/16"	5"x 1/4" x 8'-3 13/16"
RF1-2	13.0/13.0	0.135	14'-4 3/16"	5"x 1/4" x 13'-11 3/4"	5"x 1/4" x 13'-11 3/4"

▽FLANGE BRACES: Both Sides(U.N.)
FBxxB(1): xx=length(in), (1)=one side
B - L2X2X1/8



RIGID FRAME ELEVATION: FRAME LINE 2

GENERAL NOTES:

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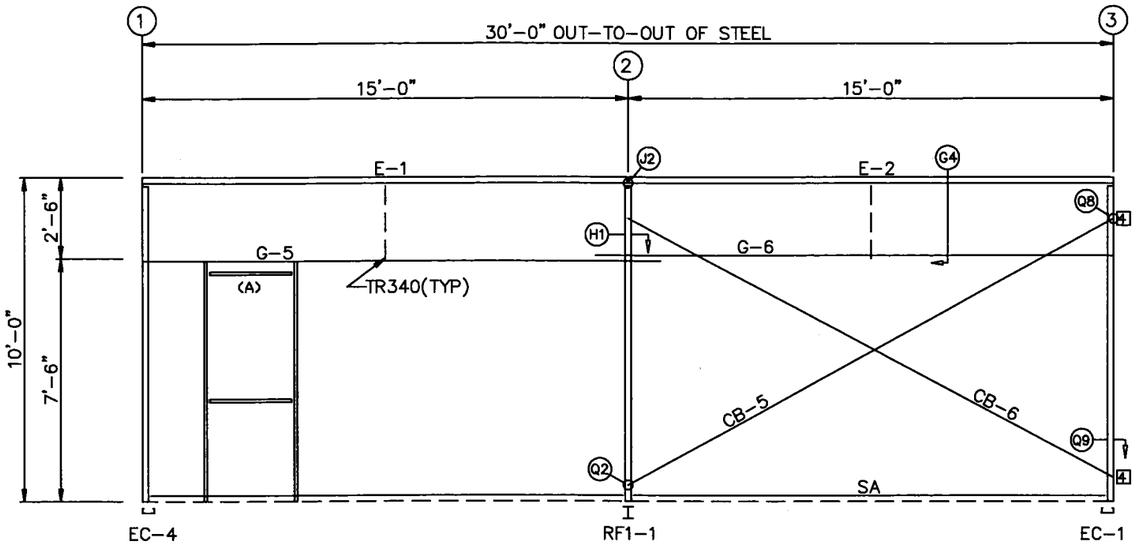
Checker:	Date:	Office:	
RIGID FRAME ELEVATION			Sht. E3 of 12

MEMBER TABLE FRAME LINE A & E		
MARK	PART	LENGTH
DJ-2	8x25C16	7'-1 1/2"
DH-2	8x25C16	2'-7 15/16"
DS-1	8x25C16	2'-7 15/16"
E-1	8x30E16	14'-11 1/4"
E-2	8x30E16	14'-11 1/4"
G-5	8x25Z16	15'-11 1/2"
G-6	8x25Z16	15'-11 1/2"
CB-5	0.25_CBL	14'-5"
CB-6	0.25_CBL	14'-10"

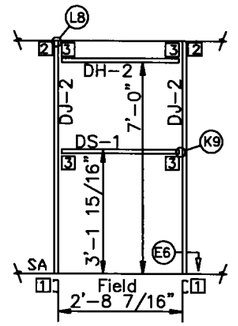
CONNECTION PLATES FRAME LINE A & E	
☐ID	MARK/PART
1	CL002
2	CL021
3	CL025
4	CL253



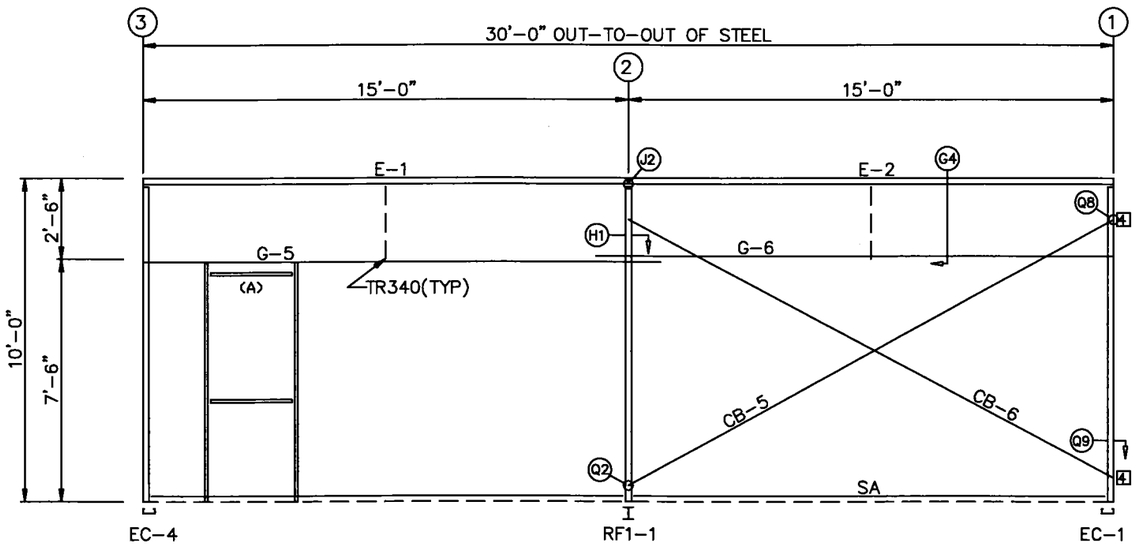
GIRT LAPS

1'-0" 1'-0"

SIDEWALL FRAMING: FRAME LINE A



FRAMING REQ'D. FOR 2'-8 7/16"x3'-10 1/16" FRAMED OPENING FOR WINDOW (2 REQ'D.) (A)



GIRT LAPS

1'-0" 1'-0"

SIDEWALL FRAMING: FRAME LINE E

GENERAL NOTES:

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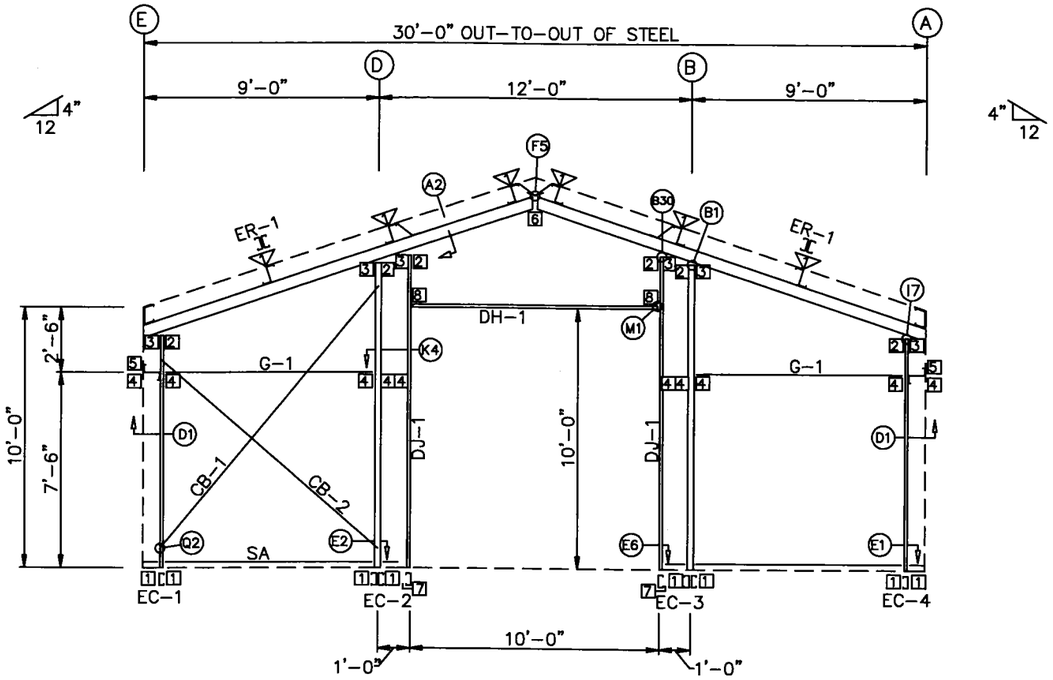
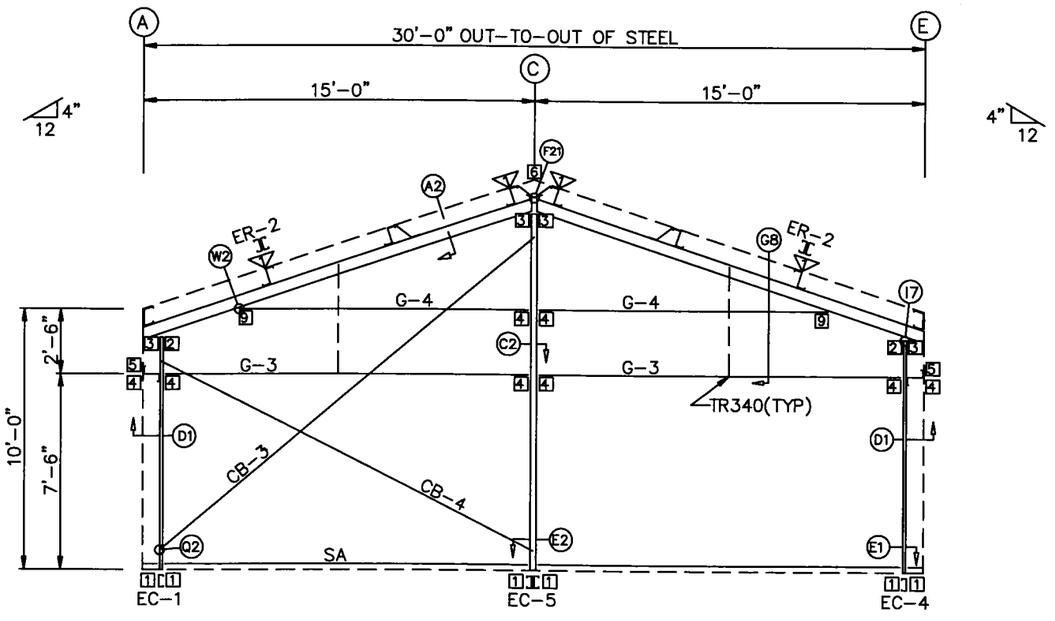
SIDEWALL FRAMING			Sht. E4 of 12



ENDWALL FRAMING: FRAME LINE 1



ENDWALL FRAMING: FRAME LINE 3

GENERAL NOTES:

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BOLT TABLE
FRAME LINE 1 & 3

LOCATION	QUAN	TYPE	DIA	LENGTH
ER-1/ER-1	4	A325T	1/2"	2"
ER-2/ER-2	4	A325T	1/2"	2"
Columns/Raf	8	A325T	1/2"	2"
Jamb	6	A325T	1/2"	2"

MEMBER TABLE
FRAME LINE 1 & 3

MARK	PART	LENGTH
EC-1	8x25C16	8'-8 13/16"
EC-2	8X50D15	11'-6 1/8"
EC-3	8X50D15	11'-6 1/8"
EC-4	8x25C16	8'-8 13/16"
EC-5	8X50D15	13'-6 1/8"
ER-1	8X50D15	15'-6 15/16"
ER-2	8X50D15	15'-6 15/16"
DJ-1	8x25C16	11'-10 1/8"
DH-1	8x25C16	9'-11 1/2"
G-1	8x25Z16	7'-7"
G-3	8x25Z16	13'-7"
G-4	8x25Z16	9'-10 15/16"
CB-1	0.25_CBL	11'-3"
CB-2	0.25_CBL	9'-3"
CB-3	0.25_CBL	16'-11"
CB-4	0.25_CBL	14'-4"

FLANGE BRACE TABLE
FRAME LINE 1 & 3

▽ID	MARK	LENGTH
1	FB28.8	2'-4 3/4"

CONNECTION PLATES
FRAME LINE 1 & 3

□ID	MARK/PART
1	CL003
2	CL081
3	CL083
4	CL020
5	CL050
6	CL122
7	CL002
8	CL025
9	CL030

CABLE NOTES:

FIELD SLOT GIRTS FOR CABLE TO PASS-THRU.

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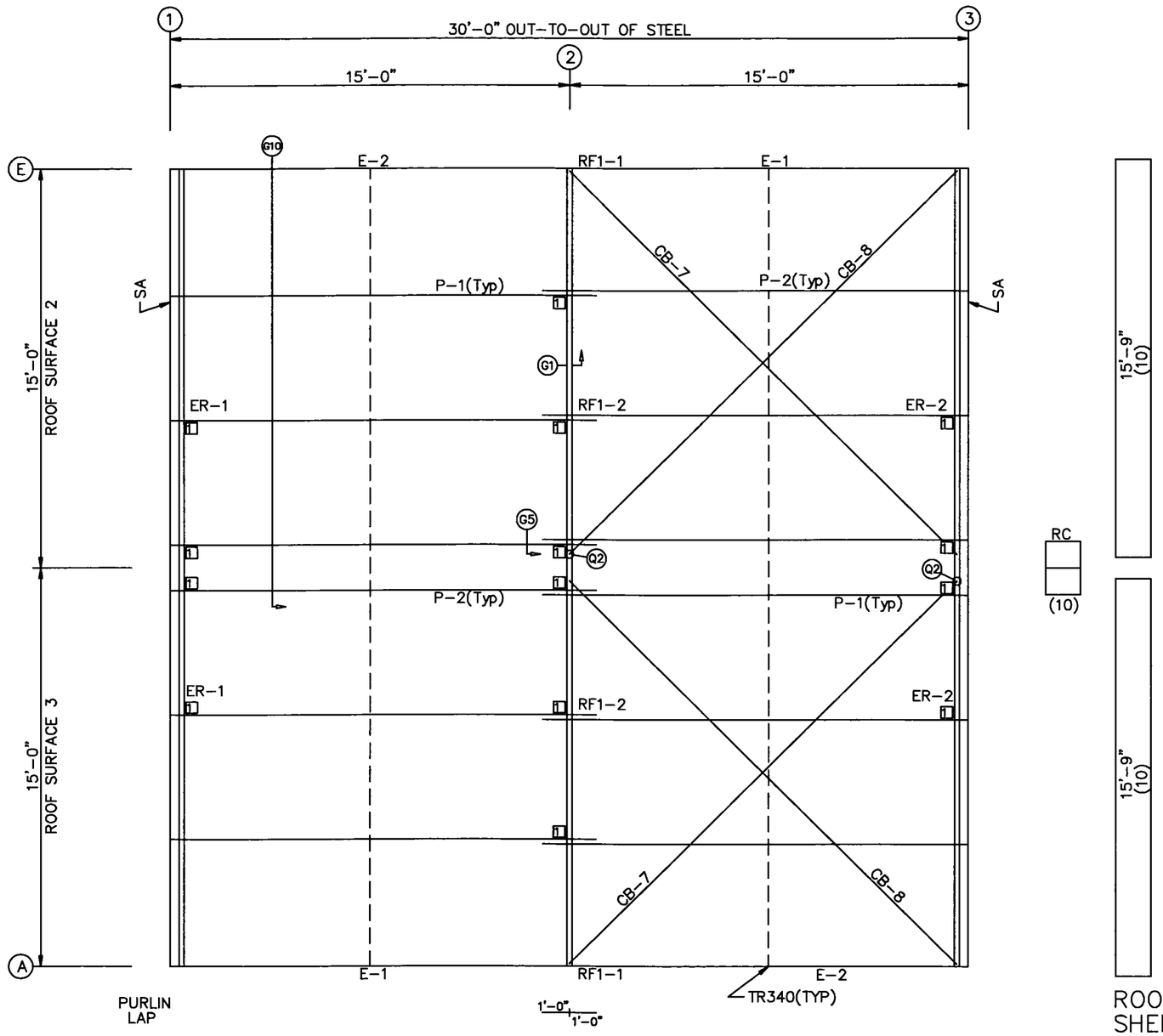
Checker:	Date:	Office:	
ENDWALL FRAMING			Sht. E5 of 12

MEMBER TABLE ROOF PLAN		
MARK	PART	LENGTH
P-1	8x25Z16	15'-11 1/2"
P-2	8x25Z16	15'-11 1/2"
E-1	8x30E16	14'-11 1/4"
E-2	8x30E16	14'-11 1/4"
CB-7	0.25_CBL	18'-7"
CB-8	0.25_CBL	19'-1"

CONNECTION PLATES ROOF PLAN	
ID	MARK/PART
1	CL156



ROOF FRAMING PLAN

LOW PROFILE RIDGE VENT
1'-1 1/4"x10'-0" WITH 3 1/2" THROAT
(2 REQ'D) (FIELD LOCATE AT RIDGE)
ERECTOR NOTE:
(50) #14x7/8" S.D. SCREWS,
(8) OUTSIDE CLOSURES AND 50' OF MASTIC
PROVIDED FOR EACH VENT.

ROOF SHEETING

PANELS: 26 Ga. PBR
Galvalume/Plain

GENERAL NOTES:

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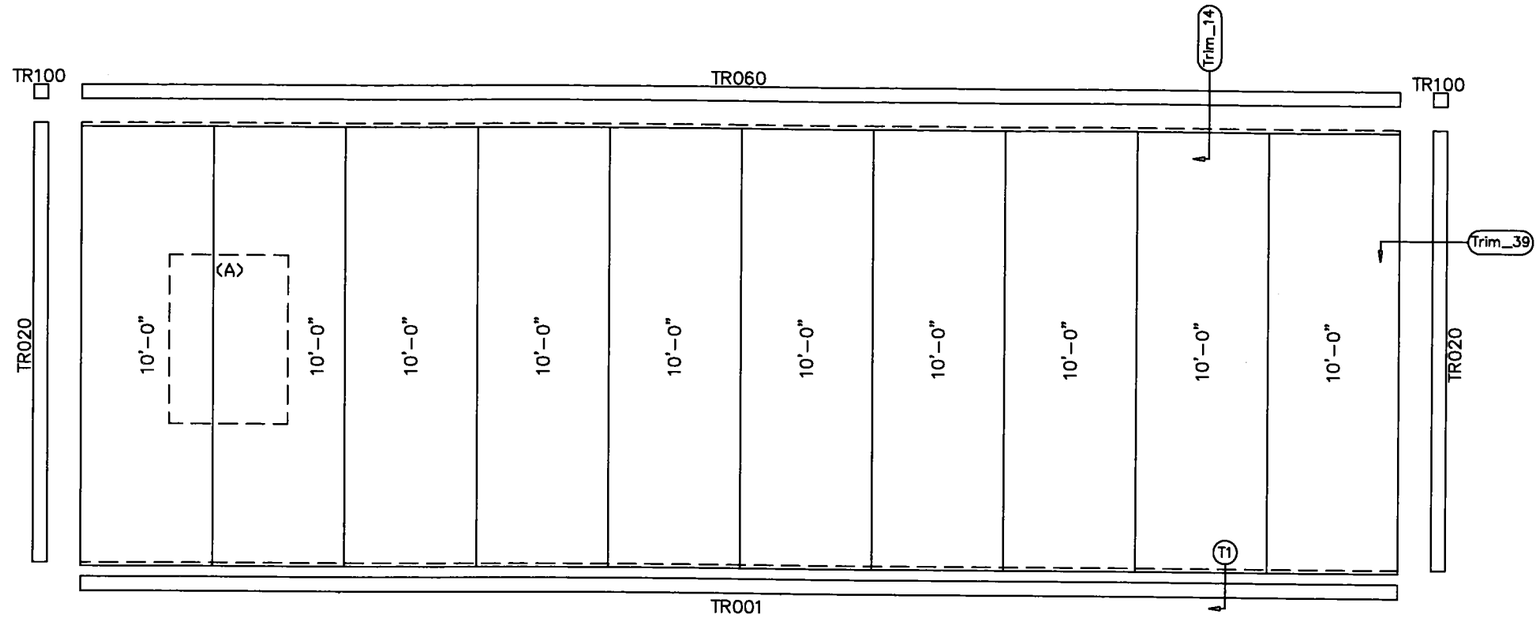
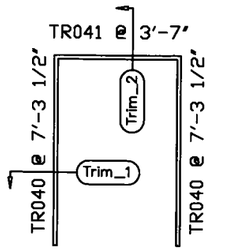
ROOF FRAMING & SHEETING			Sht. E6 of 12

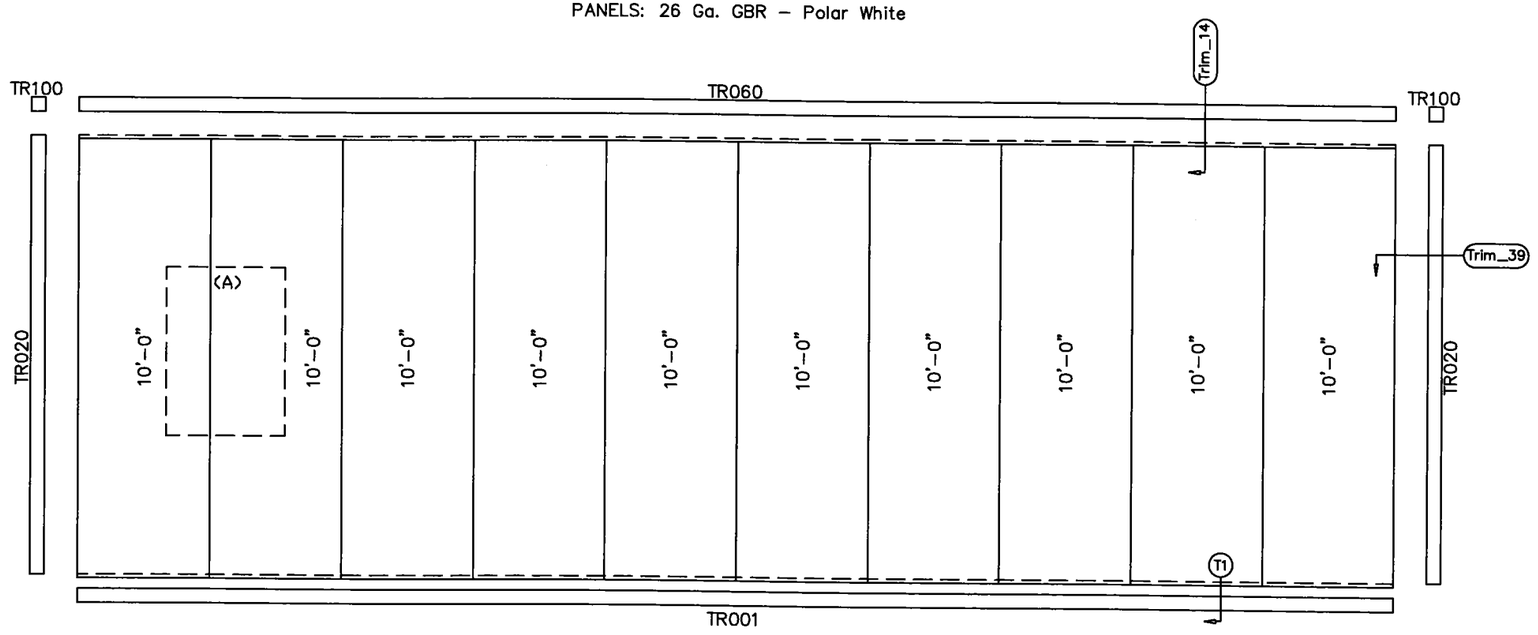


SIDEWALL SHEETING & TRIM: FRAME LINE A

PANELS: 26 Ga. GBR – Polar White

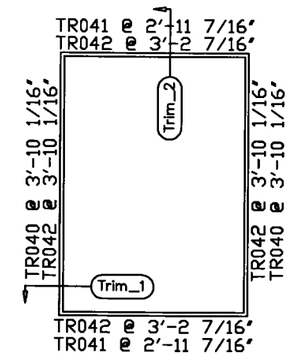


TRIM DETAIL LAYOUT
FOR 3'x7' WALKDOOR
(1 REQ'D)



SIDEWALL SHEETING & TRIM: FRAME LINE E

PANELS: 26 Ga. GBR – Polar White



TRIM DETAIL LAYOUT
FOR 2'-8 7/16"x3'-10 1/16" F.O.
(2 REQ'D)
(A)

GENERAL NOTES:

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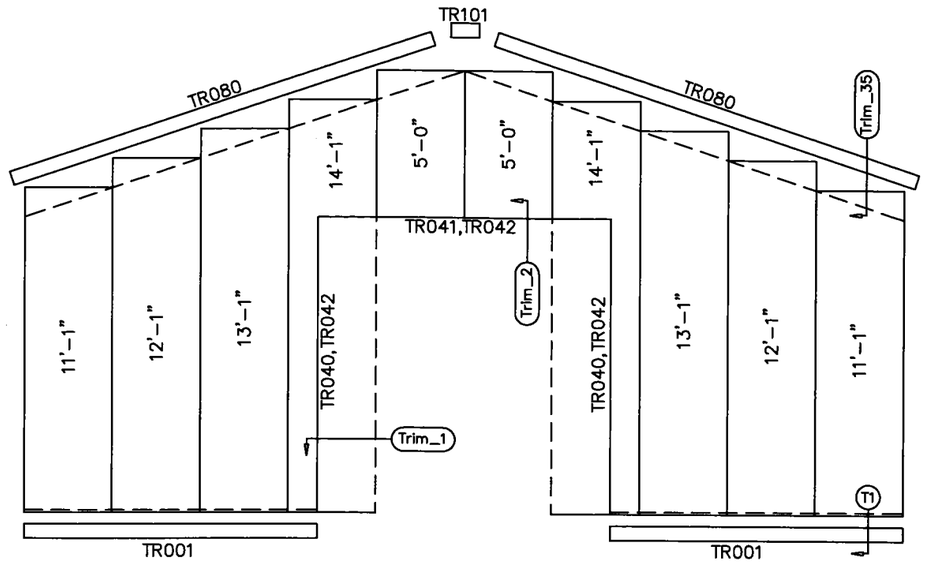
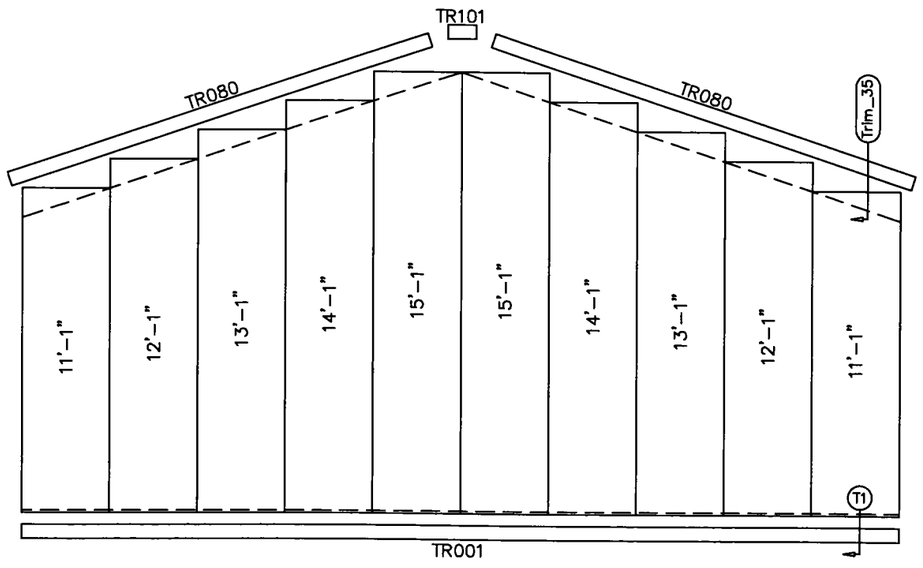
Detailer:	Date:	Office:	Job No.: 16927
Checker:	Date:	Office:	
SIDEWALL SHEETING			Sht. E7 of 12



ENDWALL SHEETING & TRIM: FRAME LINE 1

PANELS: 26 Ga. GBR – Polar White



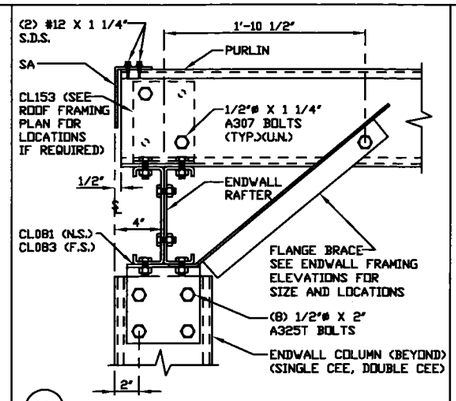
ENDWALL SHEETING & TRIM: FRAME LINE 3

PANELS: 26 Ga. GBR – Polar White

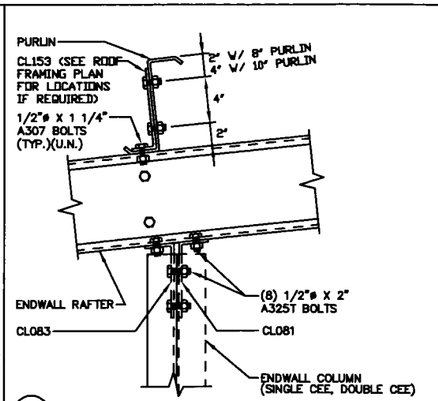
GENERAL NOTES:

MINOR FIELD WORK OF STRUCTURAL, SECONDARY AND PANEL/TRIM ITEMS MAY BE NECESSARY TO ENSURE PROPER FIT. SUCH WORK IS CONSIDERED A NORMAL PART OF METAL BUILDING ERECTION. WE WILL NOT HONOR BACKCHARGES FOR MINOR FIELD WORK.

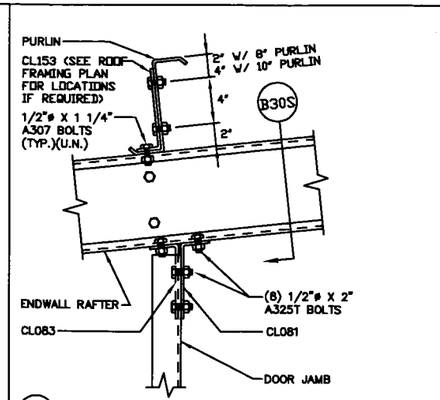
BISON STEEL BUILDINGS, INC.		SEABOARD REMEDIAL ACTION TRUST FUND	
City: MINNEAPOLIS	State: MN	City: GREENSBORO	State: NC
Designer: DAZ	Date: 3/18/13	Drafter: HTS	Date: 3/18/13
Detailer:	Date:	Office:	Job No.: 16927
Checker:	Date:	Office:	
ENDWALL SHEETING			Sht. E8 of 12



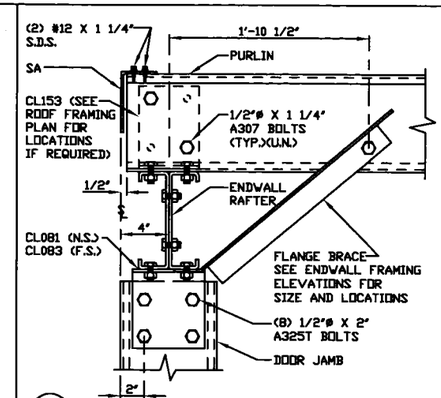
A2 PURLIN TO ENDWALL RAFTER



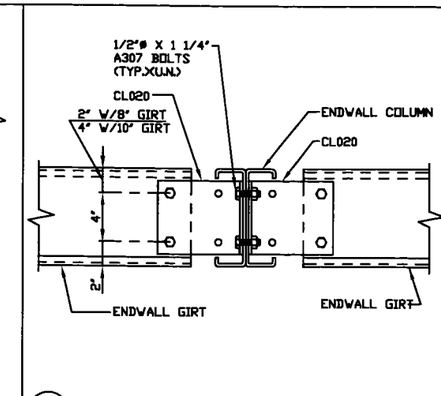
B1 ENDWALL COLUMN TO ENDWALL RAFTER



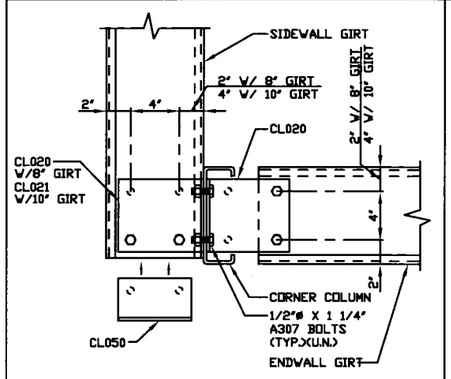
B30 DOOR JAMB TO ENDWALL RAFTER



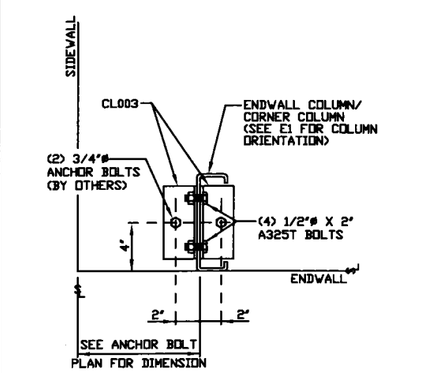
B30S PURLIN TO ENDWALL RAFTER



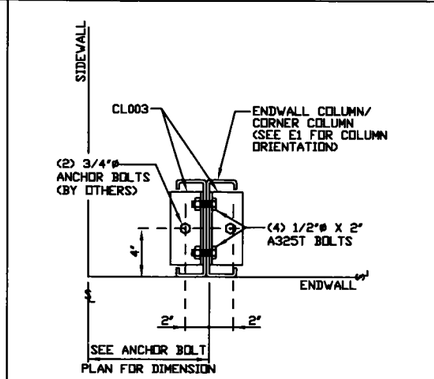
C2 ENDWALL COLUMN GIRT CONNECTION



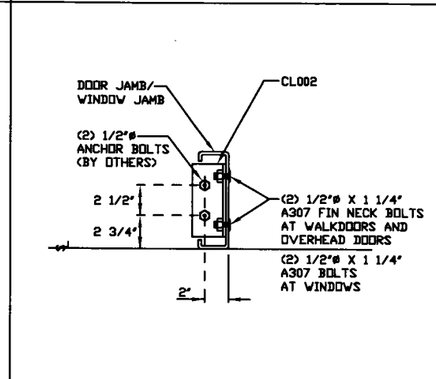
D1 CORNER COLUMN GIRT CONNECTION



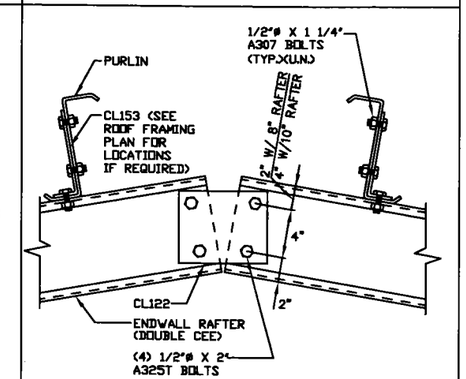
E1 ENDWALL COLUMN BASE SECTION



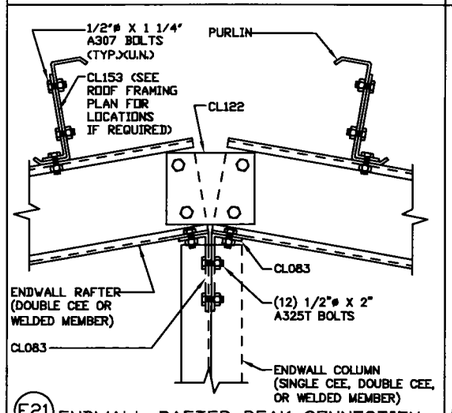
E2 ENDWALL COLUMN BASE SECTION



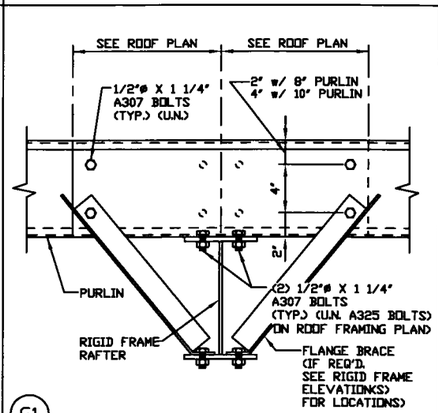
E6 DOOR/WINDOW JAMB BASE SECTION



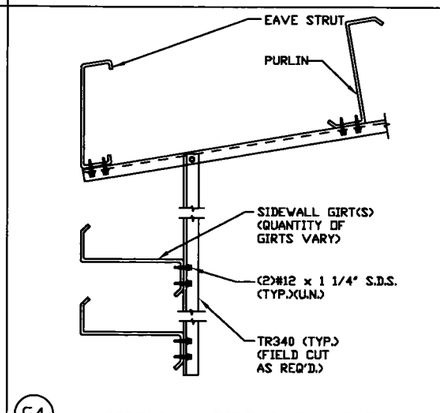
F5 ENDWALL RAFTER PEAK CONNECTION



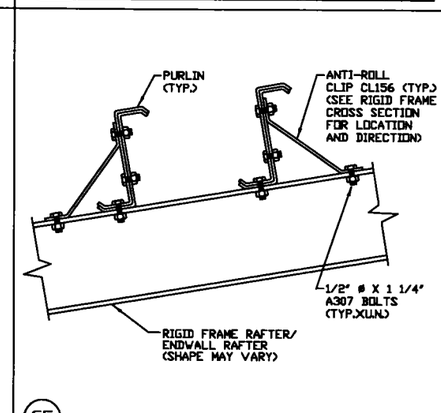
F21 ENDWALL RAFTER PEAK CONNECTION



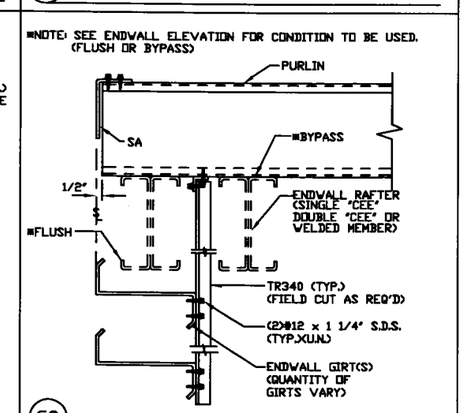
G1 FLANGE BRACE/BOLT PATTERN AT PURLIN LAP



G4 SIDEWALL GIRT SAG ANGLE



G5 ANTI-ROLL CLIP DETAIL



G8 ENDWALL GIRT SAG ANGLE

NOTES:
1.) WEB BOLTS IN DOUBLE "C" RAFTERS TO BE AT ENDS, EACH PURLIN, AND MID-POINT BETWEEN PURLINS WITH A MAXIMUM SPACE OF 2'-6".
2.) WEB BOLTS IN DOUBLE "C" COLUMNS TO BE AT ENDS, EACH GIRT, AND MID-POINT BETWEEN GIRTS WITH A MAXIMUM SPACE OF 3'-8".
3.) ALL SCREWS ARE WITH WASHERS UNLESS NOTED.

BISON STEEL BUILDINGS, INC.		SEABOARD REMEDIAL ACTION TRUST FUND	
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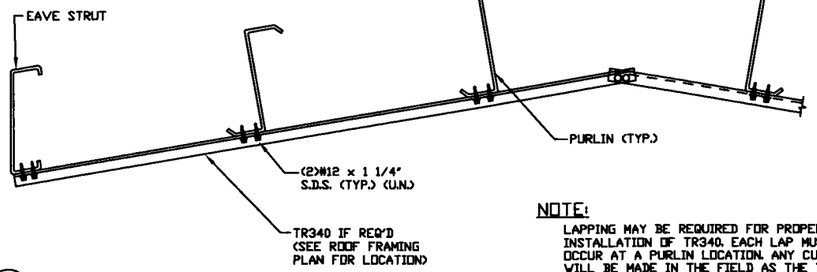
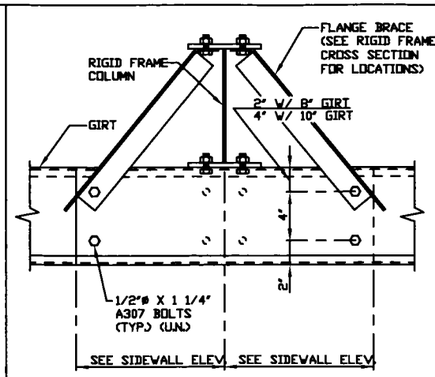
Detailer:	Date:	Office:	Job No.: 16927
Checker:	Date:	Office:	
DETAIL DRAWINGS			Sht. E9 of 12

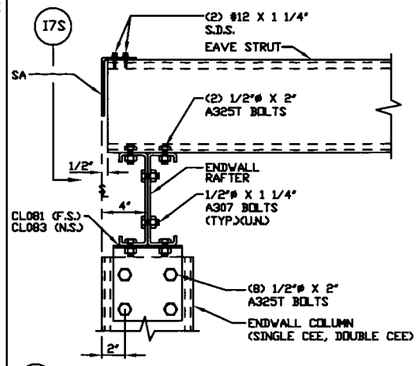


NOTE:
LAPPING MAY BE REQUIRED FOR PROPER INSTALLATION OF TR340. EACH LAP MUST OCCUR AT A PURLIN LOCATION. ANY CUTS WILL BE MADE IN THE FIELD AS THE TR340 IS SUPPLIED IN 20'-0" PIECES.

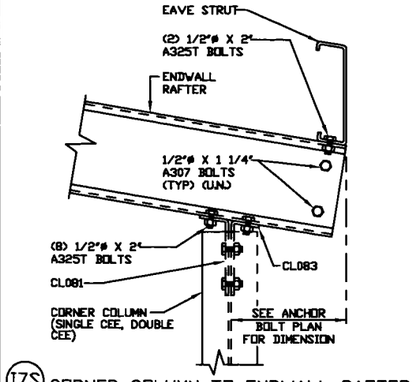
G10 PURLIN SAG ANGLE DETAIL



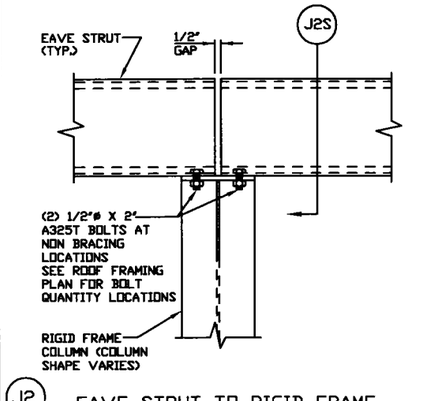
H1 2x2 SIDEWALL GIRT CONNECTION



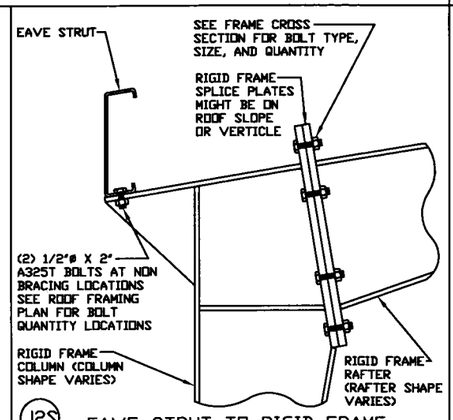
I7 CORNER COLUMN TO ENDWALL RAFTER



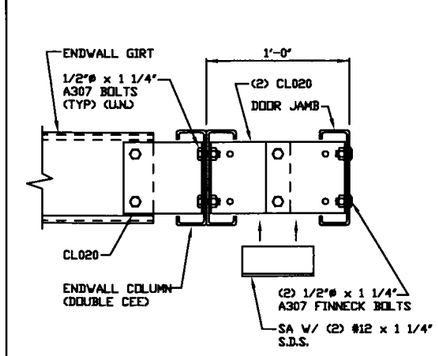
I7S CORNER COLUMN TO ENDWALL RAFTER



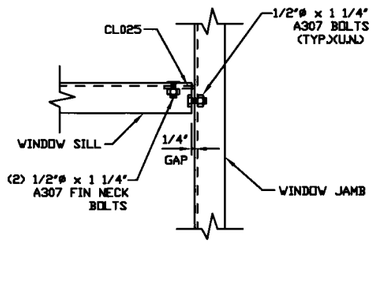
J2 EAVE STRUT TO RIGID FRAME



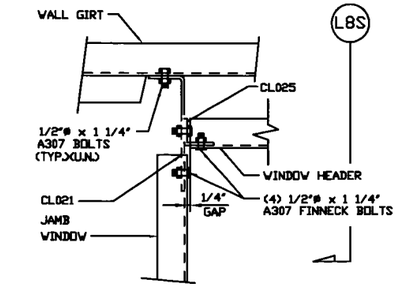
J2S EAVE STRUT TO RIGID FRAME



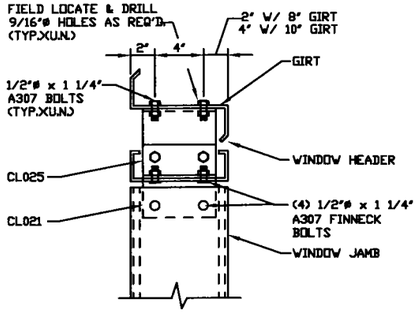
K4 ENDWALL COLUMN GIRT CONNECTION



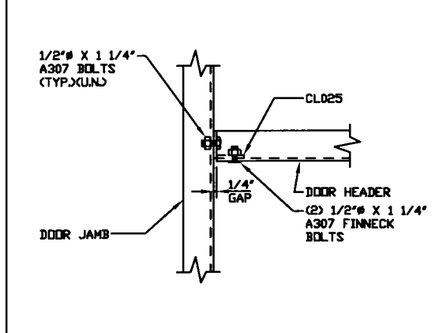
K9 WINDOW SILL TO WINDOW JAMB



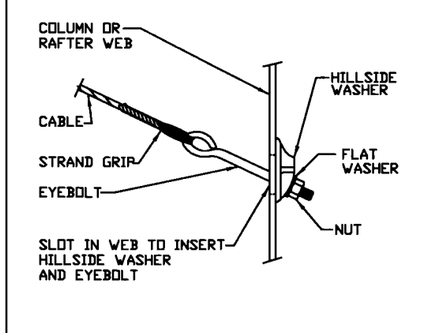
L8 WINDOW JAMB TO WALL GIRT



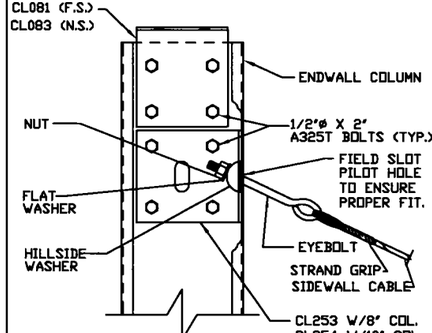
L8S WINDOW JAMB TO WALL GIRT



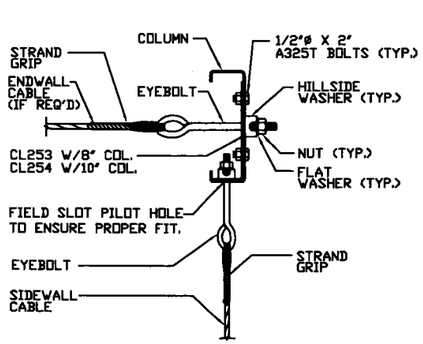
M1 HEADER TO DOOR JAMB



Q2 DIAGONAL CABLE BRACE CONNECTION

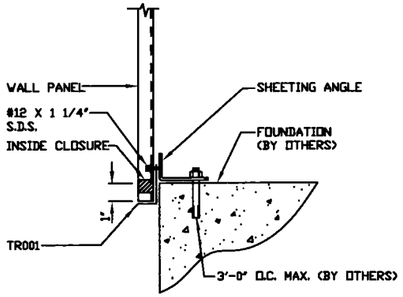


Q8 CABLE TO ENDWALL COLUMN

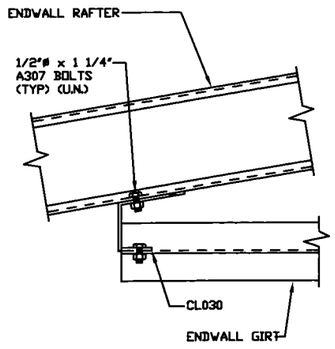


Q9 DIAGONAL CABLE BRACE CONNECTION

BISON STEEL BUILDINGS, INC.		SEABOARD REMEDIAL ACTION TRUST FUND	
City: MINNEAPOLIS	State:MN	City: GREENSBORO	State:NC
Designer: DAZ	Date: 3/18/13	Drafter: HTS	Date: 3/18/13
Detailer:	Date:	Office:	Job No.: 16927
Checker:	Date:	Office:	
DETAIL DRAWINGS			Sht. E10 of 12

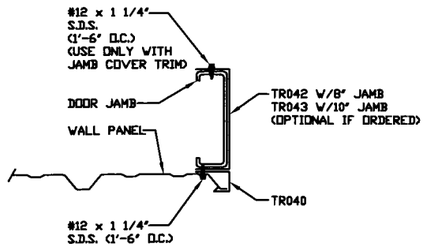


T1 BASE TRIM SECTION

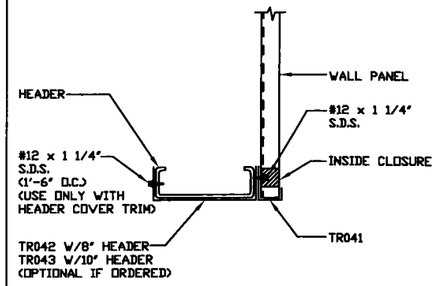


W2 ENDWALL GIRT TO ENDWALL RAFTER

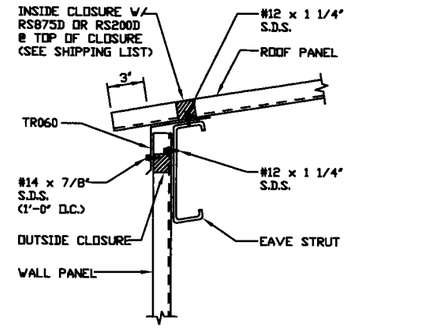
BISON STEEL BUILDINGS, INC.		SEABOARD REMEDIAL ACTION TRUST FUND	
City: MINNEAPOLIS	State: MN	City: GREENSBORO	State: NC
Designer: DAZ	Date: 3/18/13	Drafter: HTS	Date: 3/18/13
Detailer:	Date:	Office:	Job No.: 16927
Checker:	Date:	Office:	
DETAIL DRAWINGS			Sht. E11 of 12



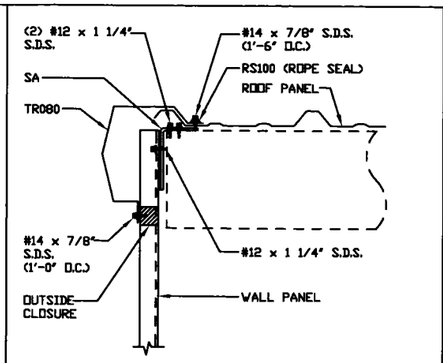
Trim_1 DOOR JAMB TRIM



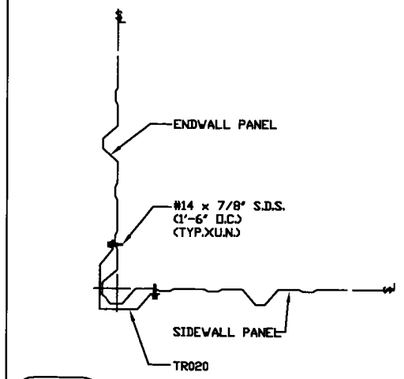
Trim_2 HEADER TRIM



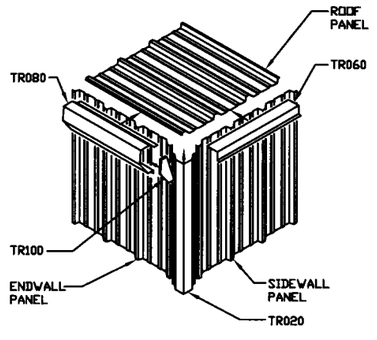
Trim_14 EAVE TRIM SECTION



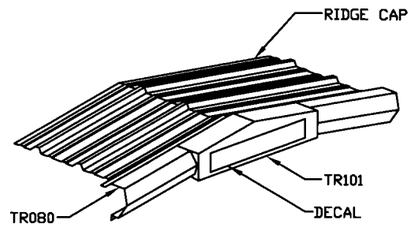
Trim_35 RAKE TRIM SECTION



Trim_39 CORNER TRIM SECTION

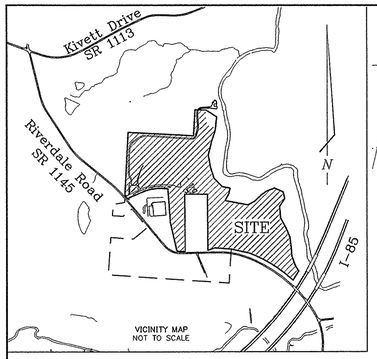


BUILDING CORNER DETAIL



PEAK DETAIL

BISON STEEL BUILDINGS, INC.		SEABOARD REMEDIAL ACTION TRUST FUND	
City: MINNEAPOLIS	State:MN	City: GREENSBORO	State:NC
Designer: DAZ	Date: 3/18/13	Drafter: HTS	Date: 3/18/13
Detailer:	Date:	Office:	Job No.: 16927
Checker:	Date:	Office:	
TRIM DRAWINGS			Sht. E12 of 12



NOTES:

1. THIS IS NOT A SURVEY. NOT FOR RECORD, SALES, OR CONVEYANCES.

2. LOCATIONS SHOWN ON THIS MAP OF ABOVE GROUND FEATURES ARE FROM AN ACTUAL FIELD SURVEY PERFORMED BY JAMESTOWN ENGINEERING GROUP, INC. LOCATIONS OF UNDERGROUND FEATURES ARE APPROXIMATE AND SHOULD BE FIELD VERIFIED PRIOR TO COMMENCEMENT OF WORK.

"BEFORE YOU DIG!
CALL 1-800-632-4949
N.C. ONE-CALL CENTER
IT'S THE LAW!"

EX. UTILITY POLE UNDERGROUND TO NEW TRANSFORMER AND PANEL

NEW POLE AND WEATHER STATION

EXISTING MAINTENANCE BUILDING

PROPERTY LINE

CITY LIMIT (IN) (OUT)

TOC 777.8

EXISTING LS-2 BUILDING

WEATHER STATION
-LS-1 R/W
-LS-1 LGHT T-STAT
-PMDR-1
-RW-SIR 2-6
(2) SPARE 3" CONDUIT
RW-SIR 2
RW-SIR 3
RW-SIR 4
RW-SIR 5
RW-SIR 6
FDC TO PMTYO WEST
FDC TO PMTYO EAST
FDC TO LS-1
INTERNET
TO PMTYO
TO PDTW
CITY WATER
PERTINATION

MON. WELL

WELL W-23

TIE TO EX. WATERLINE

SILT FENCE ALONG TOE OF DISTURBANCE

10' GRAVEL DRIVE

GRAVEL DRIVE

CONCRETE APRON

NEW FILTER BUILDING

TOP OF SLAB =774.1

TIE TO EX. (2) 4" LINES

FROM CITY WATER

TO LS-2

FROM LS-2

EXISTING GRADE 772

PROPOSED GRADE

10' 5' 0 10' 20'
SCALE: 1" = 10'

JAMESTOWN ENGINEERING GROUP, INC.
CONSULTING ENGINEERS
117 E. MAIN STREET
P.O. BOX 385
JAMESTOWN, N.C. 27282
Telephone (336) 886-5523
C - 0626

NORTH CAROLINA PROFESSIONAL SEAL 27485 ENGINEER THOMAS R. GRAY

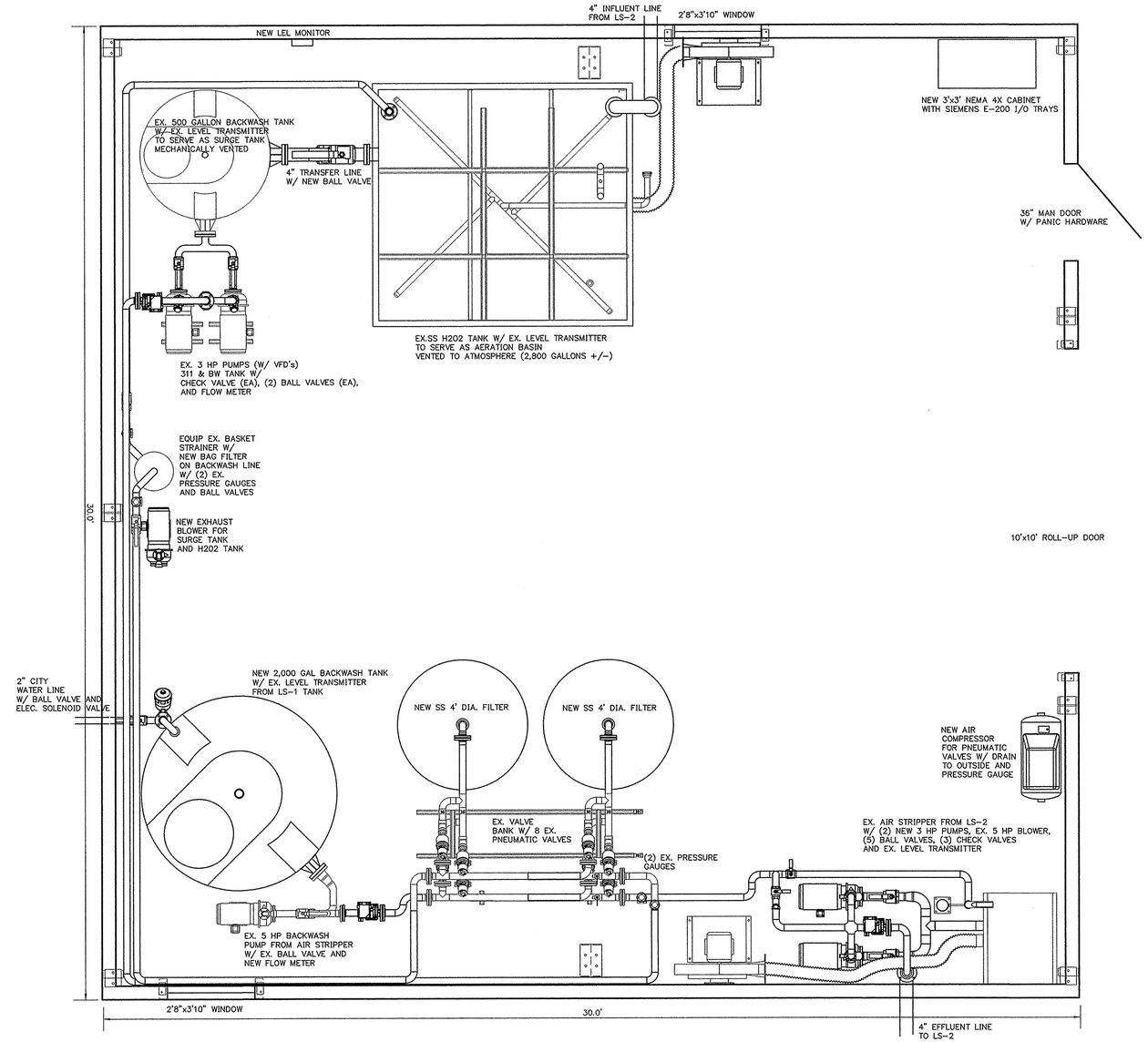
JOB NUMBER	200165
DATE	MARCH, 2013
DESIGNED	T.R.G.
DRAWN	T.R.G.
CHECKED	D.W.P.
SCALE	1" = 10'

REV.	DATE	DESCRIPTION	BY

GENERAL SITE PLAN
SEABOARD GROUP II &
THE CITY OF HIGH POINT
FILTER BUILDING
CITY OF HIGH POINT
GUILFORD COUNTY - NORTH CAROLINA

SHEET NO.
C-1

5-15/c-1.DWG
03/29/13 3:35 PM



2' 0 2' 4'

SCALE: 1" = 2'

JAMESTOWN ENGINEERING GROUP, INC.
CONSULTING ENGINEERS
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P.O. BOX 365
JAMESTOWN, N.C. 27282
Telephone (336) 886-5523
C - 0626

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 27465 THOMAS R. GRAVES JR.

6/28/13

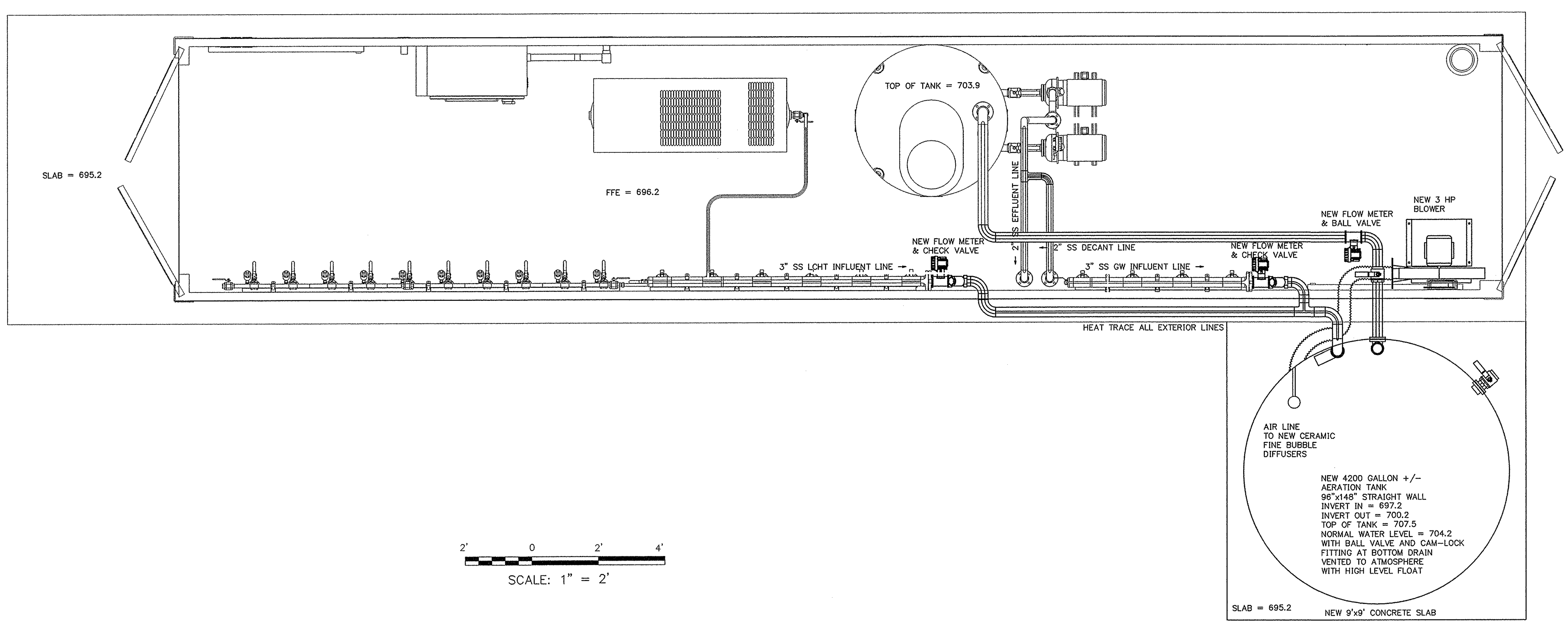
JOB NUMBER	2005165
DATE	FEBRUARY 2013
DESIGNED	T.R.G.
DRAWN	T.R.G.
CHECKED	D.W.P.
SCALE	

REV.	DATE	DESCRIPTION	BY

FLOOR PLAN
SEABOARD GROUP II &
THE CITY OF HIGH POINT
FILTER BUILDING
CITY OF HIGH POINT
GUILFORD COUNTY - NORTH CAROLINA

SHEET NO.
C-2

LS-2-REVISIONS.DWG
02/28/13 3:15 PM



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C - 0626

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 27465 THOMAS R. GLOVER JR.
6/28/13

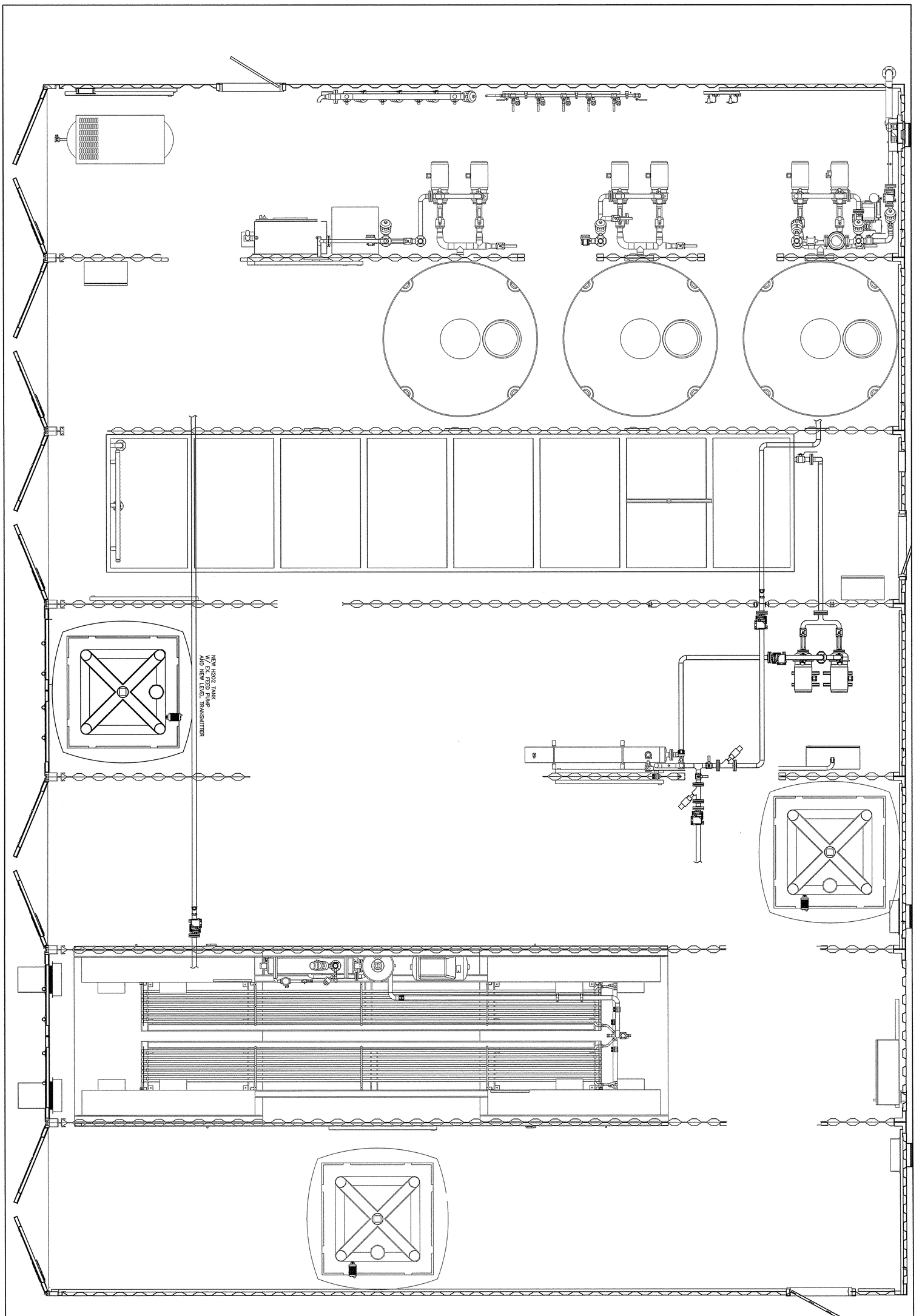
JOB NUMBER	2005165
DATE	FEBRUARY 2013
DESIGNED	T.R.G.
DRAWN	T.R.G.
CHECKED	D.W.P.
SCALE	

REV.	DATE	DESCRIPTION	BY

SITE PLAN
SEABOARD GROUP II &
THE CITY OF HIGH POINT
LS-1 REVISIONS
CITY OF HIGH POINT
GUILFORD COUNTY - NORTH CAROLINA

SHEET NO.
C-3

LS-1-REVISIONS.DWG
02/28/13 3:15 PM



SITE PLAN

SEABOARD GROUP II & THE CITY OF HIGH POINT LS-2 REVISIONS

CITY OF HIGH POINT
GUILFORD COUNTY – NORTH CAROLINA

SHEET NO. C-4

LS-2-REVISIONS.DWG
02/26/13 3:15 PM

REV.	DATE	DESCRIPTION	BY

JOB NUMBER	2005165
DATE	FEBRUARY 2013
DESIGNED	T.R.G.
DRAWN	T.R.G.
CHECKED	D.W.P.
SCALE	

NORTH CAROLINA PROFESSIONAL SEAL 27495 ENGINEER THOMAS R. GLOVER, JR.

6/24/13

JAMESTOWN ENGINEERING GROUP, INC.
CONSULTING ENGINEERS
117 E. MAIN STREET
P.O. BOX 365
JAMESTOWN, N.C. 27282
Telephone (336) 886-5523
C – 0626

JEG inc.

ONE – LINES

150 KVA
480V: 120/208V, 3PH, 60HZ — TRANSFORMER WITH PRIMARY AND SECONDARY VOLTAGE, KVA RATING AND CONNECTION INDICATED.

P6: 3#6, #6G, 1" — (25) — ONE–LINE SHOWING CIRCUIT NUMBER P6 WITH THREE #6 AWG PHASE CONDUCTORS AND A #6 EQUIPMENT GROUND IN A 1" CONDUIT TO A 25 HP LOAD.

CIRCLE DENOTES ALL OR PART OF CONDUIT IS UNDERGROUND

3P–50 — LOW VOLTAGE AIR CIRCUIT BREAKER, 3 POLE, 50 AMPERE

3P–30 — THREE POLE DISCONNECT SWITCH WITH 30 AMP FUSES

S3 — SIZE 3 COMBINATION MAGNETIC MOTOR STARTER

PLANS

HEAVY LINES INDICATE NEW WORK

LIGHT LINES INDICATE EXISTING EQUIPMENT

CONDUIT EXPOSED

CONDUIT CONCEALED

CONDUIT TURNING UP, CONDUIT TURNING DOWN

LP–2 — TYPICAL HOMERUN TO BE ROUTED TO LIGHTING PANEL "LP" CIRCUIT NUMBER 2. SHORT DASH INDICATES PHASE CONDUCTOR, LONG DASH INDICATES NEUTRAL CONDUCTOR, CIRCULAR DASH INDICATES GROUND WIRE.

① — FLUORESCENT LIGHTING FIXTURE, SEE LIGHTING SCHEDULE

③ — LIGHTING FIXTURE, SEE LIGHTING SCHEDULE

E — E — UNDERGROUND CONCRETE ENCASED DUCT BANK

EE — EE — UNDERGROUND DIRECT BURIED CONDUITS

GROUND CONDUCTOR

S — SINGLE POLE SWITCH

S3 — THREE WAY SWITCH

SM — MOTOR RATED SWITCH

SWP — WEATHERPROOF SWITCH

2 — DUPLEX RECEPTACLE ON CIRCUIT LPA–2

GFI, WP — GROUND FAULT CIRCUIT INTERRUPTER WITH WEATHERPROOF IN–USE COVER

4 — SIMPLEX RECEPTACLE ON CIRCUIT LPA–4

QUAD GROUND FAULT CIRCUIT INTERRUPTER WITH WEATHERPROOF IN–USE COVER

3–PHASE RECEPTACLE

TELEPHONE OUTLET

JB — JUNCTION BOX

LIGHTING PANEL

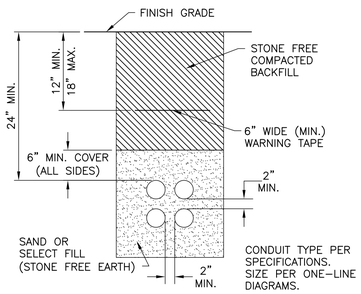
MISCELLANEOUS PANEL

COMBINATION MOTOR STARTER

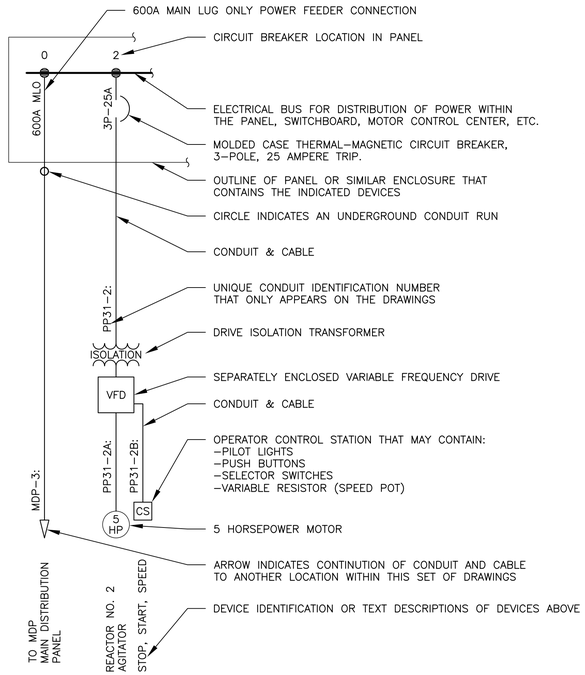
DISCONNECT SWITCH

GROUND ROD

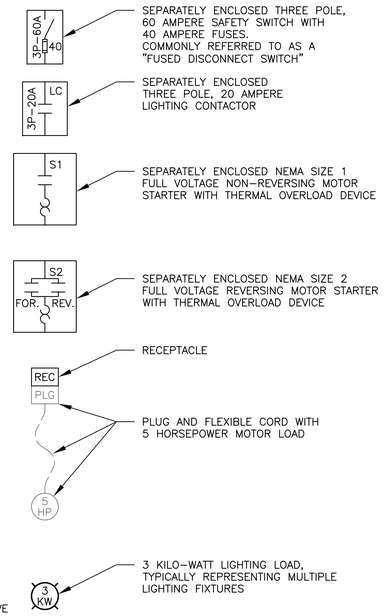
ELECTRICAL LEGEND AND SYMBOLS
NOT TO SCALE



DIRECT BURIED CONDUIT DETAIL
NOT TO SCALE



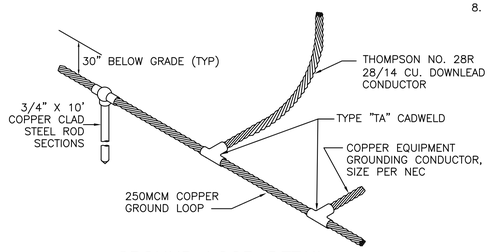
ELECTRICAL ONE–LINE DIAGRAM LEGEND
NOT TO SCALE



A	AMPERE
AC	ALTERNATING CURRENT
A/C	AIR CONDITIONER
AFF	ABOVE FINISHED FLOOR
AGL	ABOVE GROUND LEVEL
AMP	AMPERE
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BPS	BOOSTER PUMP STATION
C	CONDUIT
CB	CIRCUIT BREAKER
CFL	COMPACT FLOURESCENT
CP	CONTROL PANEL
CR	CONTROL RELAY
CS	CONTROL STATION
CT	CURRENT TRANSFORMER
DC	DIRECT CURRENT
DIA	DIAMETER
DM	DAMPER MOTOR
DS	DISCONNECT SWITCH
EB	ELECTRONIC BALLAST
EC	EMPTY CONDUIT
E.C.	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EL	ELEVATION
EHH	ELECTRICAL HAND HOLE
EWH	ELECTRIC WATER HEATER
EX.	EXISTING
EXP	EXPLOSION PROOF
G	GROUND
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFI	GROUND FAULT INTERRUPTER
GND	GROUND
HID	HIGH INTENSITY DISCHARGE (LIGHT)
HOA	HAND–OFF–AUTOMATIC
HP	HORSEPOWER
HVAC	HEATING, VENTILATION, & AIR COND.
HZ	HERTZ
JB	JUNCTION BOX
KVA	KILOVOLT–AMPERE
KW	KILOWATT
LAHJ	LOCAL AUTHORITY HAVING JURISDICTION
LE	LEVEL ELEMENT
LP	LIGHTING PANEL
LS	LEVEL SWITCH
LSH	LEVEL SWITCH – HIGH
LSL	LEVEL SWITCH – LOW
M	MAGNETIC MOTOR STARTER
M	MOTOR
MA	MILLIAMPERE
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MDP	MAIN DISTRIBUTION PANEL
MIN	MINIMUM
MLO	MAIN LUG ONLY
MPC	MINI–POWER CENTER
MTS	MANUAL TRANSFER SWITCH
MSH	MOTOR SPACE HEATER
N	NEUTRAL
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUF. ASSOC.
OL	OVERLOAD (RELAY)
PB	PUSH BUTTON
PCP	PUMP CONTROL PANEL
PE	PHOTO–ELECTRIC CONTROL
PH	PHASE
PL	PILOT LIGHT
PLC	PROGRAMMABLE LOGIC CONTROLLER
PMR	POWER MONITOR RELAY
PP	POWER PANEL
PROP.	PROPOSED
PSCP	PUMP STATION CONTROL PANEL
R	RED
REQD	REQUIRED
RTU	REMOTE TELEMETRY UNIT
RVAT	REDUCED VOLTAGE AUTOTRANSFORMER
SA	SURGE ARRESTOR
SE	SERVICE ENTRANCE
SP	SUB–PANEL
SS	STAINLESS STEEL OR SELECTOR SWITCH
SSRV	SOLID STATE REDUCED VOLTAGE
SST	STAINLESS STEEL
SSW	SELECTOR SWITCH
T	THERMOSTAT
TS	TEMPERATURE SWITCH
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TYP	TYPICAL
UH	UNIT HEATER
UM	UTILITY METER
V	VOLTS
VAC	VOLTS ALTERNATING CURRENT
VFD	VARIABLE FREQUENCY DRIVE
W	WATTS OR WHITE
WP	WEATHERPROOF
XP	EXPLOSION PROOF
ZS	POSITION SWITCH
3–PH	THREE PHASE
4P	FOUR POLE
&	AND

2(3#350), #1N, 4"	TWO PARALLEL SETS OF 3–PHASE 350MCM CONDUCTORS, ONE #1AWG NEUTRAL CONDUCTOR, NO GROUNDING CONDUCTOR, IN ONE 4" CONDUIT.
3(1PR#18STP)	THREE – SINGLE PAIR, #18 AWG SHIELDED TWISTED PAIR CABLES
2(1TR#18STT)	TWO – SINGLE TRIADS, #18 AWG SHIELDED TWISTED TRIAD CABLES
3#16STP	THREE – #16 AWG SHIELDED TWISTED PAIR CABLES
3–7/C#14	THREE – SEVEN CONDUCTOR #14 AWG MULTICONDUCTOR CONTROL CABLES
2–RS485	TWO CABLES FOR RS485 COMMUNICATION

ELECTRICAL ABBREVIATIONS
NOT TO SCALE



GROUND LOOP DETAIL
NOT TO SCALE

GENERAL NOTES:

1. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, PERMITS, AND OPERATIONS NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF ALL ELECTRICAL WORK INDICATED ON THE DRAWINGS.
2. ALL ELECTRICAL WORK AND MATERIALS SHALL COMPLY WITH THE NEC AND OTHER APPLICABLE FEDERAL, STATE, AND LOCAL CODES. ALL ELECTRICAL EQUIPMENT SHALL BE UL LISTED OR LABELED.
3. ALL DISCONNECT SWITCHES, JUNCTION BOXES, MOTOR CONTROLLERS, AND OTHER EQUIPMENT REQUIRING ELECTRICAL POWER CONNECTION SHALL BE MARKED WITH VOLTAGE PRESENT, AS APPROPRIATE TO DESIGNATE 120, 208, 240, 277, 480 VOLTS AND SINGLE OR THREE PHASE, AS APPLICABLE.
4. WIRE SHALL BE STRANDED COPPER WITH TYPE THHN/THWN–2 600V INSULATION. CONDUCTORS SHALL BE COLOR CODED BLACK, RED, BLUE, WHITE, AND GREEN ON 120/208 VOLT SYSTEMS AND BROWN, ORANGE, YELLOW, GRAY, AND GREEN ON 480Y/277 VOLT SYSTEMS. A GROUNDING CONDUCTOR SHALL BE INSTALLED IN EACH CONDUIT.
5. CONTRACTOR SHALL COORDINATE ROUTING OF CONDUITS WITH THE OWNER AND OTHER TRADES.
6. CONTRACTOR SHALL VERIFY ALL EQUIPMENT LOCATIONS AND CONNECTION POINTS PRIOR TO INSTALLATION.
7. ALL ELECTRICAL EQUIPMENT SHALL BE THIRD PARTY LISTED AS REQUIRED BY STATE OF NC.
8. THREE SINGLE PHASE CIRCUITS MAY BE COMBINED IN A SINGLE CONDUIT AS THREE PHASE CONDUCTORS, THREE NEUTRAL CONDUCTORS, AND ONE GROUND CONDUCTOR. CONTRACTOR IS RESPONSIBLE FOR UPSIZING CONDUCTORS TO MEET CODE REQUIREMENTS.

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STURGILL ENGINEERING P.A. C–1210 NORTH CAROLINA CORPORATION NO. I NUMBER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 16871 RANDALL W. STURGILL
4/29/13

JES inc.
JAMESTOWN ENGINEERING GROUP, INC.
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PROJECT NAME
SEABOARD CHEMICAL/ RIVERDALE LANDFILL CITY OF HIGH POINT GUILFORD COUNTY NORTH CAROLINA

PROJECT TEAM
DESIGNED BY: RWS
DRAWN BY: JWC/REH

REVISIONS

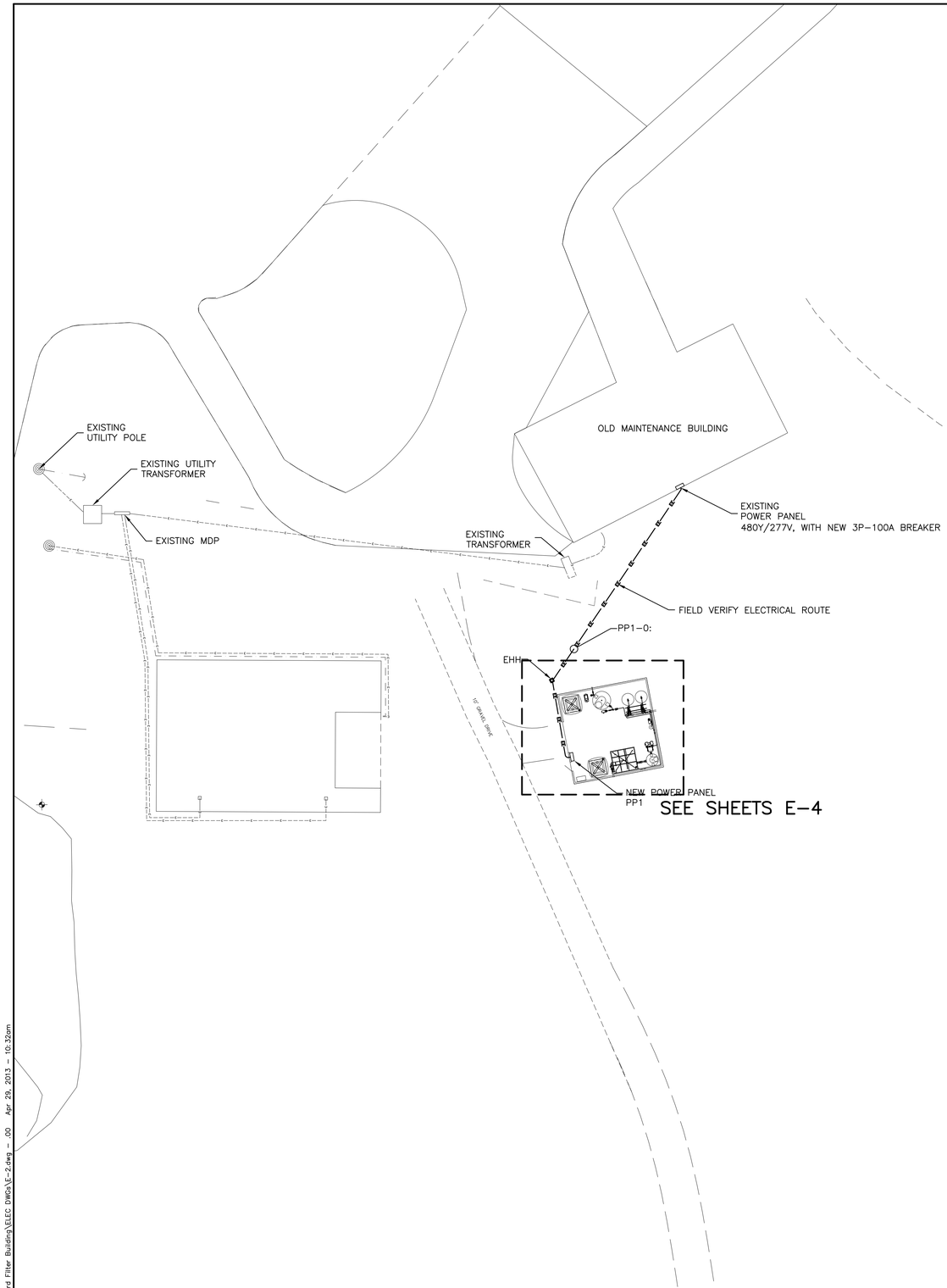
NO.	REASON	DATE

SHEET TITLE
ELECTRICAL LEGEND, SYMBOLS, ABBREVIATIONS AND MISC. DETAILS

FILE NAME: E-1.dwg
PROJECT NO.: 0005--

ISSUE DATE	SHEET NUMBER
04/19/13	E-1

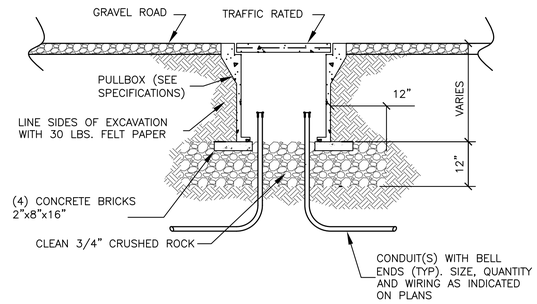
DRAWING NAME: E:\ENGNG\Seaboard Filter Building\ELEC DWGs\E-1.dwg — .00 Apr 29, 2013 – 10:34am



SEE SHEETS E-4

OVERALL ELECTRICAL SITE PLAN

1"=20'-0"



ELECTRICAL (EHH) HANDHOLE DETAIL

NOT TO SCALE

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STURGILL ENGINEERING, P.A. C-1210 NORTH CAROLINA CORPORATION

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C - 0626

PROJECT NAME

SEABOARD CHEMICAL/
RIVERDALE LANDFILL
CITY OF HIGH POINT
GUILFORD COUNTY
NORTH CAROLINA

PROJECT TEAM

DESIGNED BY
RWS

DRAWN BY
JWC/REH

REVISIONS

NO.	REASON	DATE
	-	-
	-	

SHEET TITLE

ELECTRICAL
OVERALL SITE
PLAN

FILE NAME: E-2.dwg

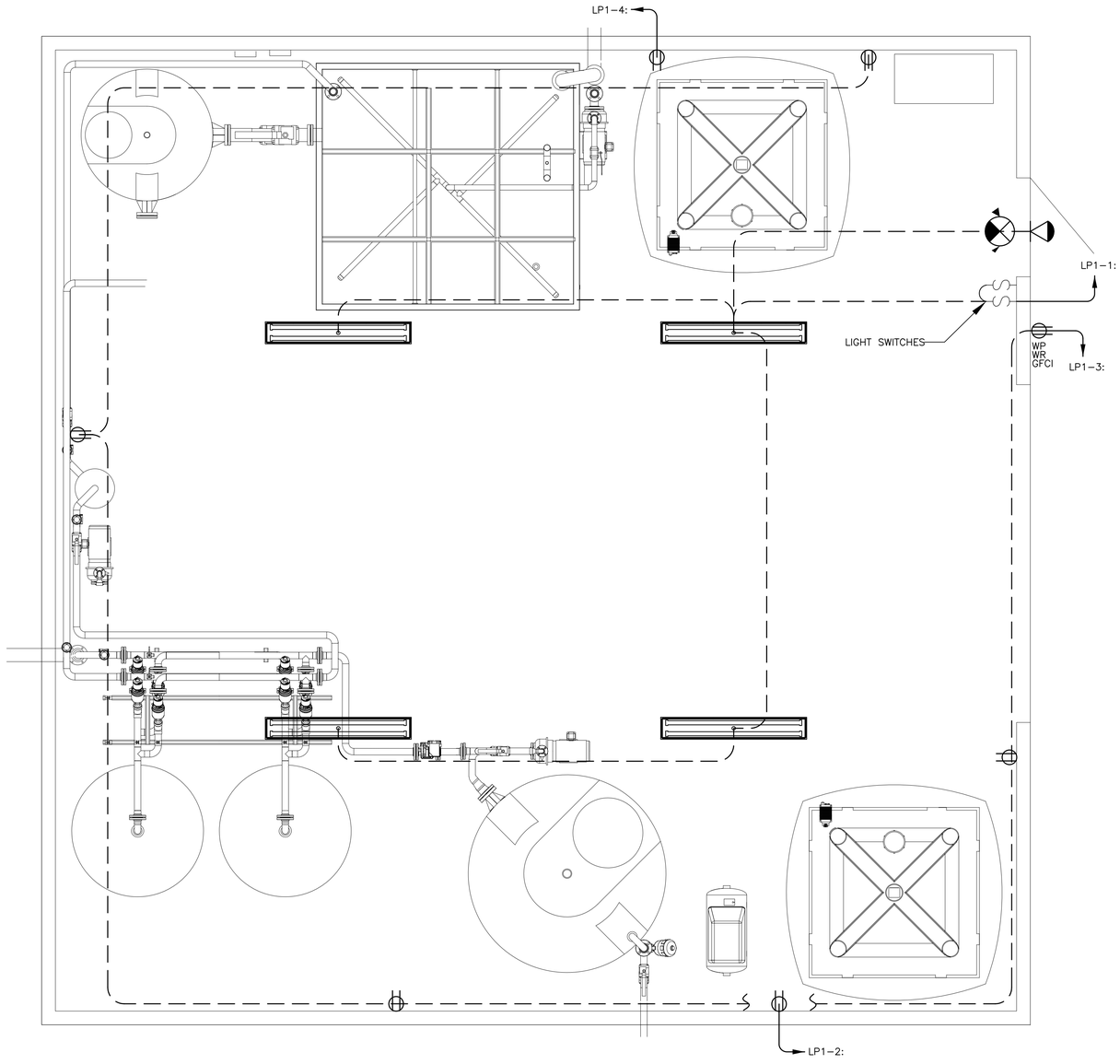
PROJECT NO.: 0005--

ISSUE DATE	SHEET NUMBER
04/19/13	E-2

DRAWING NAME: E:\JEGINC\Seaboard Filter Building\ELEC DWGs\E-2.dwg — .00 Apr 29, 2013 — 10:32am

LIGHTING FIXTURE SCHEDULE

SYMBOL	LAMP / BALLAST	TOTAL POWER PER FIXTURE	MOUNTING	DESCRIPTION	MANUFACTURER'S PART NUMBER
▭	TWO (2) 54W T5 / ELECTRONIC BALLAST	109 WATTS	SURFACE MOUNTED	4' TWO TUBE FLUORESCENT, (COORDINATE WITH EQUIPMENT PROVIDE), ELECTRONIC BALLAST, 120–277VAC	COLUMBIA LUN4–228–EB8–UNV LITONIA DM228–UNV–GEB METALUX VT2–228DR–UNVEB81–DL OR EQUIVALENT.
▭	TWO (2) 54W T5 / ELECTRONIC BALLAST	109 WATTS	SURFACE MOUNTED	4' TWO TUBE FLUORESCENT WITH POLYCARBONATE HOUSING AND GASKETED LENS, WET LOCATION LISTED (IP65), ELECTRONIC BALLAST, 120–277VAC	LUMACELL IPL5 OR EQUIVALENT.
◔	LED EXIT 2x6W EMER. / –	15 WATTS	WALL/ CEILING MOUNT	COMBINATION LED EXIT SIGN AND EMERGENCY LIGHT; WHITE WITH RED LETTERS, 120VAC, w/BATTERY PACK. REMOTE HEADS WHERE REQUIRED.	LITHONIA LHQM–SW1R120/277 PRESCOLITE XTC3REL–WH SURE–LITES CCX70–RWH–DH OR EQUIVALENT.
◡	ONE (1) 12W / ONE (1) LED DRIVER	12 WATTS	WALL MOUNT CENTERED ABOVE DOOR	WALL LIGHT WITH 12 WATT NATURAL WHITE LED WITH HAMMERTONE GRAY DIE CAST ALUMINUM HOUSING AND PHOTOCELL. 120VAC.	RAB DESIGN WL–LED–12W–NW–HG–PC OR EQUIVALENT.



LIGHTING /RECEPTACLE PLAN

1/2" = 1'–0"

PANEL: LP1

LOCATION: FILTER BUILDING
FED FROM: PP1 VIA TX1

VOLTAGE: **240Y/120 VOLT, 1PH, 4W, 60 Hz**

MAINS: 60 AMP ___ MLO; X AMP MAIN BREAKER

100% NEUTRAL BUS; * LOCK ON; ___ SHUNT TRIP

MOUNTING: ☐ UNITIZED SWITCHGEAR ☐ FLUSH [X] SURFACE

MINIMUM AIC RATING: 14 KA

DEVICE				BRANCH CIRCUIT						BRANCH CIRCUIT			DEVICE			
COND SIZE	WIRE SIZE	AMP TRIP	POLES	DESIGNATION	VOLT-AMPS	NO.	PHASE LOAD (VOLT-AMPS) L1	PHASE LOAD (VOLT-AMPS) L2	NO.	VOLT-AMPS	DESIGNATION	POLES	AMP TRIP	WIRE SIZE	COND SIZE
3/4	12	20	1	LIGHT	300	1	550		2	250	H202 TANK FEED PUMP	1	20	12	3/4
3/4	12	20	1	RECEPTACLE	900	3		1150	4	250	CAUSTIC TANK FEED PUMP	1	20	12	3/4
3/4	12	20	1	EXHAUST FAN	250	5	400		6	150	PH	1	20	12	3/4
-	-	20	1	SPARE	0	7		150	8	150	LEL	1	20	12	3/4
-	-	20	1	SPARE	0	9	0		10	0	SPARE	1	20	-	
-	-	20	1	SPARE	0	11		0	12	0	SPARE	1	20	-	-
-	-	20	1	SPARE	0	13	0		14	0	SPARE	1	20	-	-
-	-	20	1	SPARE	0	15		0	16	0	SPARE	1	20	-	-
-	-	20	1	SPARE	0	17	0		18	0	SPARE	1	20	-	
-	-	20	1	SPARE	0	19		0	20	0	SPARE	1	20	-	-
-	-	20	1	SPARE	0	21	0		22	0	SPARE	1	20	-	-
-	-	20	1	SPARE	0	23		0	24	0	SPARE	1	20	-	-
-	-	20	1	SPARE	0	25	0		26	0	SPARE	1	20	-	
-	-	20	1	SPARE	0	27		0	28	0	SPARE	1	20	-	-
-	-	20	1	SPARE	0	29	0		30	0	SPARE	1	20	-	-
TOTALS PER PHASE							1010	1300	TOTAL CONNECTED LOAD (VA)				2,310		
TOTALS AMPS PER PHASE							8	11							

NOTES:

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STURGILL ENGINEERING P.A. C-1210 CORPORATE SEAL NO. ENGINEERING

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 16871 RANDALL W. STURGILL 4/29/13

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PROJECT NAME

SEABOARD CHEMICAL/
RIVERDALE LANDFILL
CITY OF HIGH POINT
GUILFORD COUNTY
NORTH CAROLINA

PROJECT TEAM

DESIGNED BY: RWS

DRAWN BY: JWC/REH

REVISIONS

NO.	REASON	DATE
	-	-
	-	

SHEET TITLE

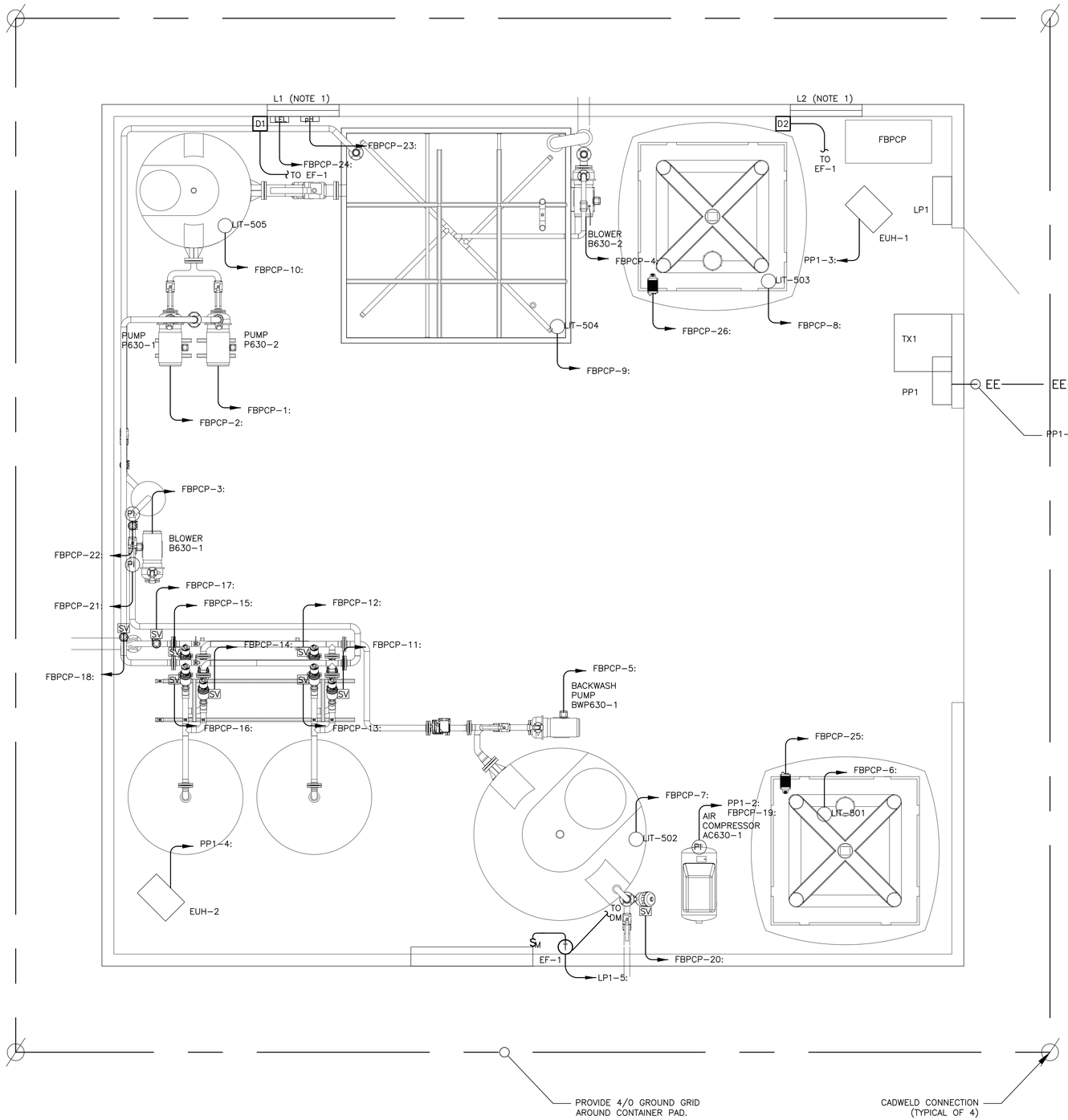
ELECTRICAL
LIGHTING AND
RECEPTACLE PLAN

FILE NAME: E-3.dwg

PROJECT NO.: 0005--

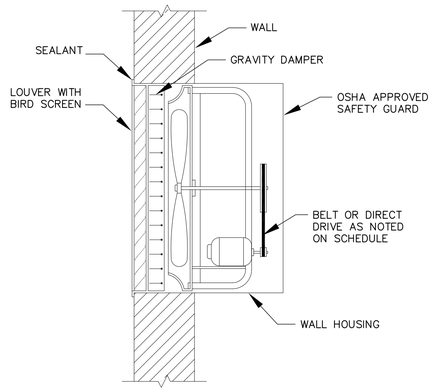
ISSUE DATE	SHEET NUMBER
04/19/13	E-3

DRAWING NAME: E:\JEGINC\Seaboard Filter Building\ELEC DWGs\E-3.dwg — 00 Apr 29, 2013 - 10:28am



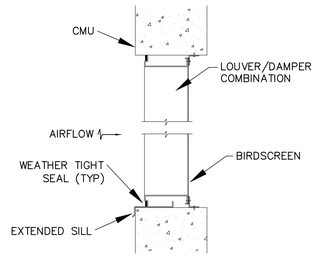
POWER PLAN

1/2" = 1'-0"



EXHAUST FAN DATAIL

NOT TO SCALE



LOUVER DATAIL

NOT TO SCALE

LOUVER DAMPER SCHEDULE

LOUVER TAG	DAMPER ACT. TAG	MFR	LOUVER MODEL	DAMPER MODEL	WIDE (IN)	HIGH (IN)	FREE AREA (SF)	FRAME TYPE	BIRD SCREEN	FINISH	END SWITCH	NUMBER OF ACTUATORS	ACTUATOR POWER VOLTS/PH	INTER-LOCK
L1	D1	RUSKIN	ELF375X	–	30	30	3	FLANGED	YES	BAKED ENAMEL	YES	1	120/1	EF-1
L2	D2	RUSKIN	ELF375X	–	30	30	2	FLANGED	YES	BAKED ENAMEL	YES	1	120/1	EF-1

NOTES:
1. ALL LOUVERS SHALL BE PROVIDED IN SINGLE SECTIONS.
2. ALL DAMPERS SHALL BE PROVIDED IN TWO SECTIONS.
3. COORDINATE POWER REQUIREMENTS WITH ELECTRICAL CONTRACTOR.

UNIT HEATER SCHEDULE

TAG	MFR	MODEL	CFM	KW	FAN BTU	HP	AMPS	POWER V/PH/HZ	TEMP RISE	–
EUH-1	QMARK	MUH0541	350	5	17,060	–	6.0	480/3/60	45	–
EUH-2	QMARK	MUH0541	350	5	17,060	–	6.0	480/3/60	45	–

EXHAUST FAN SCHEDULE

TAG	MFR	MODEL	CFM	SP in WC	FAN RPM	HP	WATTS	POWER V/PH/HZ	WEIGHT lb
EF-1	GREENHECK	SB-3224-7	3000	0.50	1485	3/4	190	240/1/60	–

NOTES:
1. EXHAUST FAN SHALL BE GREENHECK, COOK, PENN OR APPROVED EQUAL.

NOTES:

1. INTAKE LOUVERS SHALL BE ALUMINUM COMBINATION LOUVER DAMPER WITH DRAINABLE BLADES, INSECT SCREEN, AND DAMPER MOTOR. INTAKE LOUVER SHALL BE RUSKIN ELC6375D OR EQUAL, 30"H X 30"W (MIN). DAMPER MOTOR SHALL BE RATED FOR CONTINUOUS OPERATION AT 120VAC. LOUVER SHALL BE PREFINISHED WITH COLOR SELECTED BY OWNER.

2. EXHAUST FAN SHALL INCLUDE WALL HOUSING, INSECT SCREEN, GRAVITY OPERATED DAMPER, PROPELLER, MOTOR, OSHA APPROVED GUARD, MOTOR RATED DISCONNECT SWITCH, INTERNAL OVERLOAD PROTECTION,AND LINE VOLTAGE THERMOSTAT. THERMOSTAT SHALL BE LINE VOLTAGE RATED, DOUBLE POLE, 3/4 HP RATED MINIMUM.

3. UNIT HEATERS UH-1 SHALL BE HEAVY DUTY AND SHALL INCLUDE HEATING COIL, FAN AND MOTOR ASSEMBLY, DISCONNECT SWITCH, CONTACTOR, THERMOSTAT, CONTROL TRANSFORMER IF REQUIRED, AND WALL/CEILING MOUNTING HARDWARE. UNIT HEATER SHALL BE RATED 5 KW AT 480 VAC THREE PHASE. HEATER ELEMENTS SHALL BE STEEL PLATE, FIN TYPE WITH ELEMENTS BRAZED TO COMMON FINS FOR MAXIMUM STRENGTH AND HEAT TRANSFER. FAN MOTOR SHALL BE PROVIDED WITH THERMAL OVERLOAD PROTECTION WITH AUTOMATIC RESET. UNIT HEATER SHALL BE SERIES 5100 BY MARKEL OR EQUAL.

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STURGILL ENGINEERING, P.A. C-1210 ENGINEERING CORPORATION

NORTH CAROLINA SEAL 16871 ENGINEER RANDALL W. STURGILL 4/29/13

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CITY OF HIGH POINT
GUILFORD COUNTY
NORTH CAROLINA

PROJECT TEAM

DESIGNED BY
RWS

DRAWN BY
JWC/REH

REVISIONS

NO.	REASON	DATE

SHEET TITLE

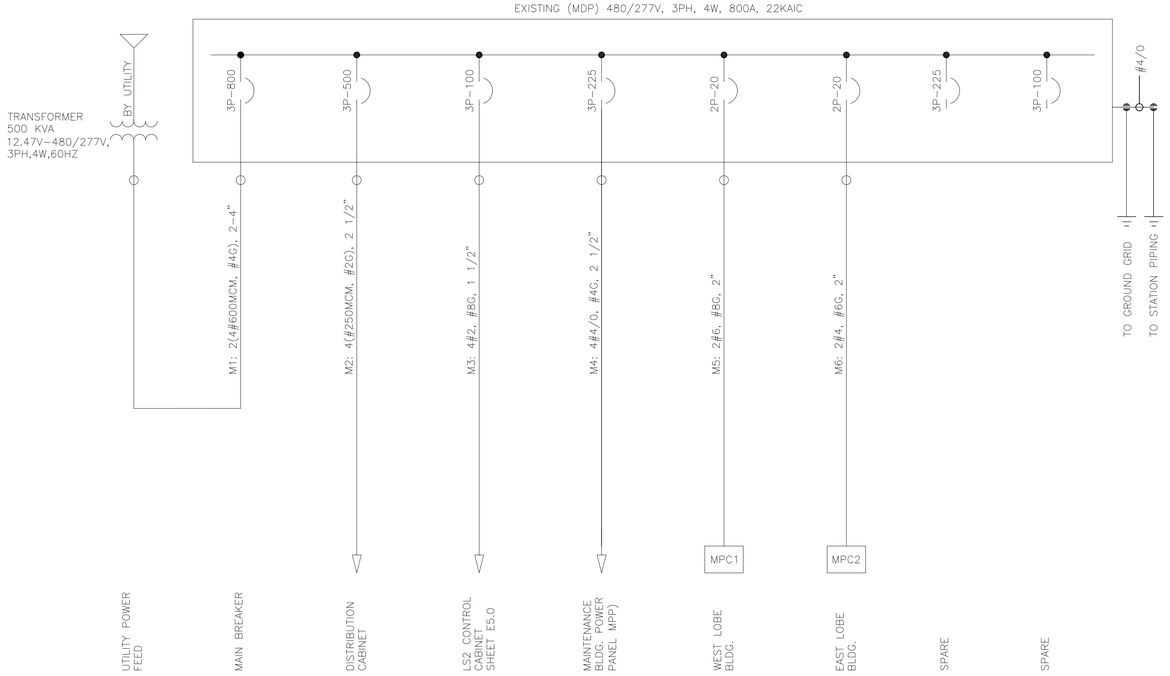
ELECTRICAL
LIGHTING AND
RECEPTACLE PLAN

FILE NAME: E-4_recover.dwg

PROJECT NO.: 0005--

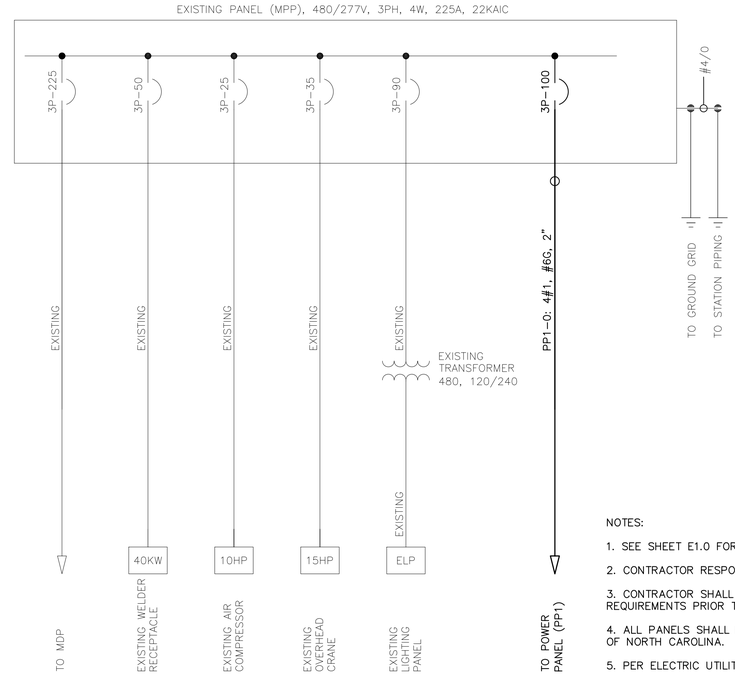
ISSUE DATE	SHEET NUMBER
04/19/13	E-4

DRAWING NAME: E:_EGINC\Seaboard Filter Building\ELEC DWGs\E-4_recover.dwg – .00 Apr 29, 2013 – 10:23am



EXISTING MAIN DISTRIBUTION PANEL, MDP ONE-LINE DIAGRAM

NOT TO SCALE

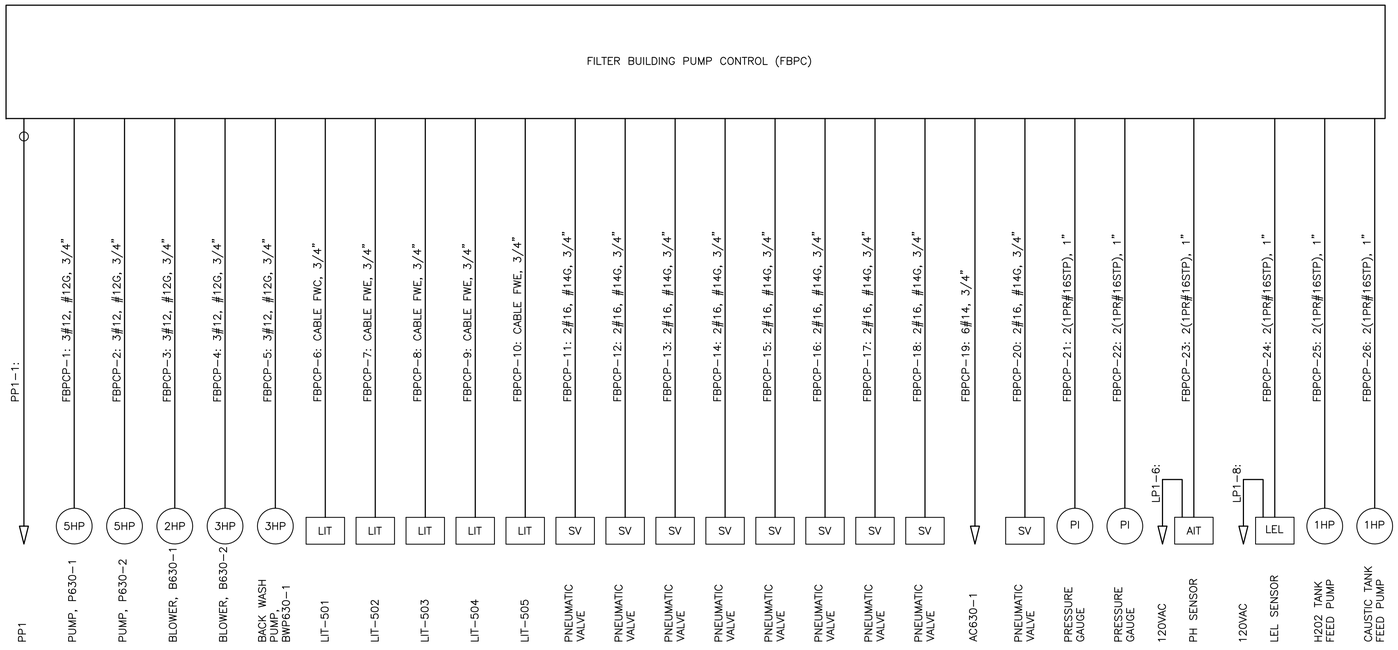


EXISTING PANEL, MPP ONE-LINE DIAGRAM

NOT TO SCALE

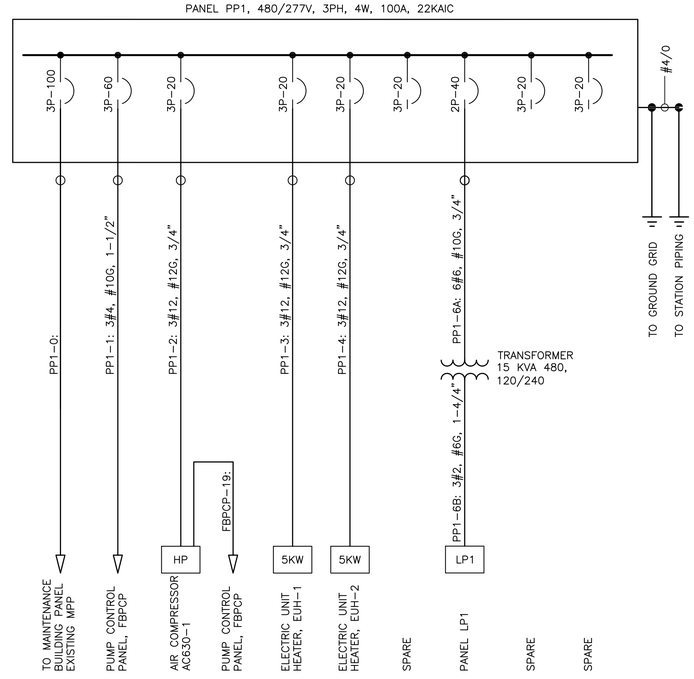
NOTES:

1. SEE SHEET E1.0 FOR ELECTRICAL LEGEND AND ABBREVIATIONS.
2. CONTRACTOR RESPONSIBLE FOR ROUTING ALL CONDUITS.
3. CONTRACTOR SHALL VERIFY EQUIPMENT LOCATIONS AND STUB-UP REQUIREMENTS PRIOR TO INSTALLATION.
4. ALL PANELS SHALL BE THIRD PARTY LISTED AS REQUIRED BY STATE OF NORTH CAROLINA.
5. PER ELECTRIC UTILITY PEAK 12 MONTH LOAD ON MDP IS 9KW.



FILTER BUILDING CONTROL CABINET

NOT TO SCALE



POWER PANEL, PP-1 ONE-LINE DIAGRAM

NOT TO SCALE

STURGILL ENGINEERING P.A. C-1210
ONE SOUTH MAIN ST.
LEXINGTON, NC 27292
(336) 238-1249 PH.
(336) 236-6393 FAX

STURGILL ENGINEERING, P.A. C-1210 NO LIABILITY CORPORATION

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 16871 RANDALL W. STURGILL
4/19/13

JEG inc.
JAMESTOWN ENGINEERING GROUP, INC.
CONSULTING ENGINEERS
117 E. MAIN STREET
P.O. BOX 365
JAMESTOWN, N.C. 27282
Telephone (336) 886-5523
C - 0626

PROJECT NAME

SEABOARD CHEMICAL/
RIVERDALE LANDFILL
CITY OF HIGH POINT
GUILFORD COUNTY
NORTH CAROLINA

PROJECT TEAM

DESIGNED BY: RWS

DRAWN BY: JWC/REH

REVISIONS

NO.	REASON	DATE
	-	-
	-	-

SHEET TITLE

ELECTRICAL MISCELLANEOUS ONE-LINE DIAGRAMS

FILE NAME: E-5.dwg

PROJECT NO.: 0005--

ISSUE DATE	SHEET NUMBER
04/19/13	E-5

DRAWING NAME: E:\JEGINC\Seaboard Filter Building\ELEC DWGs\E-5.dwg - .00 Apr 29, 2013 - 10:30am

VALVE AND PIPING SYMBOLS

- PROPORTIONING VALVE
- GATE VALVE
- BUTTERFLY VALVE
- CHECK VALVE
- PLUG VALVE
- 3-WAY VALVE
- ANGLE VALVE
- RELIEF OR SAFETY VALVE
- DIAPHRAGM VALVE
- BALL VALVE
- NEEDLE VALVE
- PINCH VALVE
- PRESSURE REGULATING VALVE
- KNIFE GATE VALVE
- BACKFLOW PREVENTER (BP)
- REDUCED PRESSURE ZONE (RPZ)
- FLEXIBLE HOSE
- ROTAMETER
- DRYER
- BASKET TYPE STRAINER
- Y-TYPE STRAINER
- DUPLEX STRAINER
- SLEEVE COUPLING (SC)
- FLOOR DRAIN
- EQUIPMENT DRAIN
- CLEANOUT (CO)
- REMOVABLE PLUG
- REMOVABLE CAP
- BLIND FLANGE (BF)
- EXHAUST TO ATMOSPHERE (INSIDE)
- EXHAUST TO ATMOSPHERE (OUTSIDE)
- REDUCER
- UNION
- QUICK DISCONNECT COUPLING
- GAUGE SEAL
- SILENCER
- EXPANSION JOINT
- RELIEF VALVE
- PULSATION DAMPENER
- FLUSHING PORT
- POLYMER INJECTION PORT W/ REDUCERS
- DIAPHRAGM SEAL
- SLUDGE BLENDER INJECTOR
- LUBRICATOR
- FILTER
- HEAT EXCHANGER
- SUCTION DIFFUSER

REFERENCE MARKER

REFERENCE SHEET FOR CONTINUATION OF DRAWING ATTRIBUTES — I-2.1

VALVE OPERATOR SYMBOLS

- SOLENOID (S)
- MOTOR, ELECTRIC (M)
- ACTUATOR, PNEUMATIC (P)
- DIAPHRAGM
- DIAPHRAGM W/ POSITIONER
- HANDWHEEL OR LEVER
- CHAINWHEEL

PRIMARY ELEMENT SYMBOLS - FLOW

- ORIFICE PLATE
- PITOT TUBE
- VENTURI TUBE FLOW METER
- TOTALIZING FLOWMETER
- CALIBRATION TUBE
- AUTOMATIC AIR VENT
- FLUME
- WEIR
- TURBINE METER
- MAGNETIC FLOWMETER
- STATIC MIXER
- SLIDE GATE
- PROBE
- FLOAT SWITCH

EQUIPMENT SYMBOLS

- SUBMERSIBLE PUMP
- CENTRIFUGAL PUMP
- PNEUMATIC WELL PUMP
- SURFACE MOUNT PNEUMATIC PUMP
- SCREW CONVEYOR
- METERING PUMP
- PISTON PUMP
- BLOWER
- LOBE BLOWER
- KNOCKOUT TANK (KO)
- MIXER
- PROGRESSIVE CAVITY PUMP
- RECIPROCATING AIR COMPRESSOR (AC)

GENERAL INSTRUMENT SYMBOLS

ONE VARIABLE	TWO VARIABLES	
○	○○	FIELD MOUNTED
⊖	⊖⊖	PANEL MOUNTED
◇		INTERLOCK
◇		PROGRAMMABLE LOGIC CONTROLLER (PLC)
⊖		HUMAN MACHINE INTERFACE (HMI)
△		DIGITAL INPUT SIGNAL (TO PLC)
▽		DIGITAL OUTPUT SIGNAL (FROM PLC)
▲		ANALOG INPUT SIGNAL (TO PLC)
▼		ANALOG OUTPUT SIGNAL (FROM PLC)

LINE SYMBOLS

- WATER STREAMS
- SOLIDS STREAMS
- SECONDARY WATER STREAMS
- PNEUMATIC SIGNAL / COMPRESSED AIR
- CHEMICAL FEED LINE
- ELECTRIC SIGNAL
- CAPILLARY TUBING
- HYDRAULIC SIGNAL
- ELECTROMAGNETIC OR SONIC SIGNAL NO WIRING OR TUBING

PROCESS LINE ABBREVIATIONS

AIR	AIR, ATMOSPHERIC PRESSURE
BW	BACKWASH
CA	COMPRESSED AIR
CCA	CHLORINE CONTAMINATED AIR
CGW	CONTAMINATED GROUNDWATER
D	DRAIN
EFF	EFFLUENT
EXH	EXHAUST
FLT	FILTRATE
FTW	FILTER-TO-WASTE
NPW	NON-POTABLE WATER
OZE	OZONE GAS
P	PRODUCT
PW	POTABLE WATER
RW	RAW WATER
S	SANITARY
SL	SLUDGE
SN	SUPERNATANT
SP	SAMPLE PORT
SS	STORM SEWER
TF	TOTAL FLUIDS
TW	TREATED WATER
V	VENT
VAP	VAPOR

PIPING MATERIAL IDENTIFICATION

CPVC	CHLORINATED POLYVINYL CHLORIDE
CSP	CARBON STEEL PIPE
COP	COPPER
CMP	CORRUGATED METAL PIPE
CIP	CAST IRON PIPE
DIP	DUCTILE IRON PIPE
FRP	FIBERGLASS REINFORCED PIPE
GSP	GALVANIZED STEEL PIPE
HDPE	HIGH DESITY POLYETHYLENE PIPE
PE	POLYETHYLENE PIPE
PP	POLYPROPYLENE PIPE
PVC	POLYVINYL CHLORIDE PIPE
RCP	REINFORCED CONCRETE PIPE
RUB	RUBBER
SS	STAINLESS STEEL PIPE
VCP	VITRIFIED CLAY PIPE

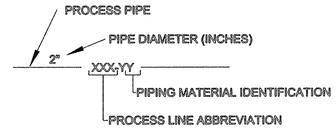
EQUIPMENT NOTATION ABBREVIATIONS

AC	AIR COMPRESSOR
AN	ANNUBAR
ARV	AIR RELIEF VALVE
B	BLOWER
BFP	BELT FILTER PRESS
BP	BOOSTER PUMP
BPD	BACKFLOW PREVENTION DEVICE
C	CATALYST
CA	COLLECTOR ARM
CC	CALIBRATION COLUMN (LG)
CL	CHLORINATOR
CV	CHECK VALVE
CY	CYCLONE
D	DIFFUSERS
E	EDUCTOR
FC	FILTER CELL
FM	FLOW METER
FV	FLOW VALVE
GC	GRIT CLASSIFIER
GS	GAS SENSOR
GT	GRAVITY THICKENER
H	HYDROCYCLONE
HP	HOPPER
HV	HAND VALVE
IN	INJECTOR
L	LAUNDER
MX	MIXER
OP	ORIFICE PLATE
P	PUMP
PB	POLYMER AIRLOCK
PCV	PRESSURE CONTROL VALVE
PD	PULSATION DAMPENER
PW	PRESSURE WASHER
PWC	PRE WETTING CON
RA	ROTARY AIRLOCK
RM	ROTOMETER
S	STORAGE
SB	STORAGE BIN
SC	SCALE
SIL	SILENCER
SM	STATIC MIXER
SP	SAMPLE PUMP
SV	SOLENOID VALVE
SW	STILLING WELL
T	TANK
V	VIBRATOR
VR	AUTOMATIC SWITCHOVER VACUUM REGULATOR W/ TRAP & FILTER
WP	ADJUSTABLE WEIR PLATE
WW	WETWELL

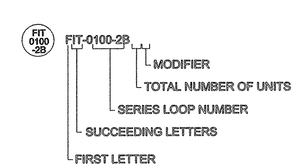
INSTRUMENT IDENTIFICATION TABLE

	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION				
C	CONDUCTIVITY			CONTROL	CLOSED
D	DENSITY (SP. GR.)	DIFFERENTIAL			
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE	RATIO (FRACTION)			
G	GAGING (DIMENSIONAL)		GLASS, VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	MOTOR	MOMENTARY			MIDDLE, INTERMEDIATE
N	TORQUE		ISOLATE	ISOLATOR	
O	OPERATION		ORIFICE, RESTRICTION		OPEN
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD		
S	SPEED OR FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE OR DAMPER, LOUVER	
W	WEIGHT OR FORCE		WELL		
X	UNCLASSIFIED	X-AXIS			
Y	EVENT, STATE OR PRESENCE	Y-AXIS		RELAY OR COMPUTE, CONVERT	
Z	POSITION, DIMENSION	Z-AXIS		DRIVE, ACTUATOR	

PROCESS PIPING IDENTIFICATION



INSTRUMENT IDENTIFICATION



FUNCTION ABBREVIATIONS

A	ANALOG
AIT	ANALOG INDICATING TRANSMITTER
ALT	ALTERNATE
BFC	BALLASTED FLOCCULATION / CLARIFICATION
CL_2	CHLORINE RESIDUAL
CS	CONTROL STATION
D	DIGITAL
dP	DIFFERENTIAL PRESSURE
DO	DISSOLVED OXYGEN
I	INTERNAL INDICATOR
FC	FAIL CLOSED
FI	FAIL INDETERMINATE
FL	FAIL LOCKED
FO	FAIL OPEN
HMI	HUMAN MACHINE INTERFACE
HOA	HAND-OFF-AUTOMATIC
HS	HAND SWITCH
IAS	INTERNAL AIR SUPPLY
I/I	CURRENT-TO-CURRENT
I/P	CURRENT-TO-PNEUMATIC
LEL	LOWER EXPLOSIVE LIMIT
L	LENGTH
LCP	LOCAL CONTROL PANEL
LOS	LOACK OUT SERVICE
L/R	LOCAL-REMOTE
NO	NORMALLY OPEN
NC	NORMALLY CLOSED
O_3	OZONE GAS
OAC	OPEN-AUTO-CLOSE
OC	OPEN-CLOSE
OO	ON-OFF....MAINTAINED
ORP	OXIDATION REDUCTION POTENTIAL
OSC	OPEN-STOP-CLOSE....MOMENTARY
SEQ	SEQUENCE OPERATION
SP	SET POINT
S/S	START-STOP....MOMENTARY
TOAE	TIME-TO-OPEN AFTER ENERGIZED
TURB	TURBIDITY
UCP	UNIT CONTROL PANEL
VGAC	VAPOR-PHASE GRANULAR ACTIVATED CARBON
VM	VOLTAGE MONITOR
>	HIGH SELECT
<	LOW SELECT

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CHEMTECH ENGINEERING, INC.
11254 SUNSET BAY NORTHPORT, ALABAMA 35475
Telephone: (205) 339-0689 Fax: (205) 339-4487

NO.	DATE	APPR.	REVISION	NO.	DATE	APPR.	REVISION
0	12-14-09	S. Lucas	FOR CLIENT REVIEW				
1	5-18-10	S. Lucas	FOR BID PACKAGE SUBMITTAL				
2	11-10-10	S. Lucas	FOR PRE-CONSTRUCTION REVIEW				
3	6-20-12		PER INSTALLATION				
4	6-28-13		PER REQUESTED MODIFICATIONS				

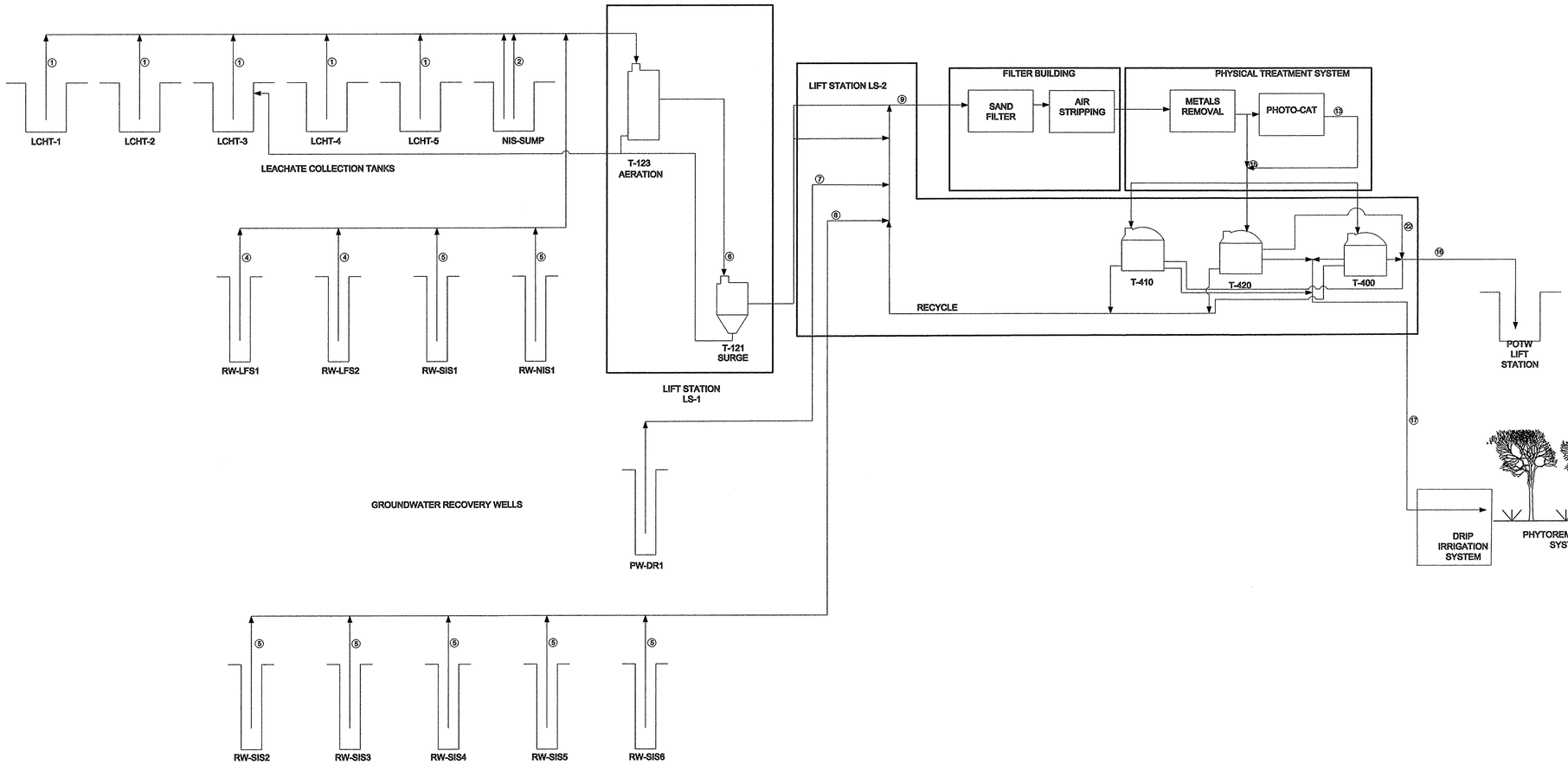
REMEDIATION SYSTEM DESIGN DRAWINGS
FORMER SEABOARD CHEMICAL FACILITY/
RIVERDALE DRIVE LANDFILL SITE
SEABOARD GROUP II — JAMESTOWN, NC

DRAWN BY: M. BROWN	PROJECT ENGINEER: R. GLOVER
DESIGN ENGINEER: S. LUCAS	PROJECT MANAGER: J. LARUE

MECHANICAL TREATMENT PROCESS AND INSTRUMENTATION DIAGRAM

SCALE: NTS	DATE: JUNE 28, 2013
PROJECT NO.: 05-165 SEABOARD	AutoCAD 2010: PROCESS-FLOW-DIAGRAM.DWG

DRAWING NO.: I-1
REV. NO.: 4
SHEET 1 OF 8



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SEABOARD GROUP II — JAMESTOWN, NC

DRAWN BY	PROJECT ENGINEER
M. BROWN	R. GLOVER
DESIGN ENGINEER	PROJECT MANAGER
S. LUCAS	J. LARUE

MECHANICAL TREATMENT
PROCESS AND INSTRUMENTATION DIAGRAM

SCALE	DATE
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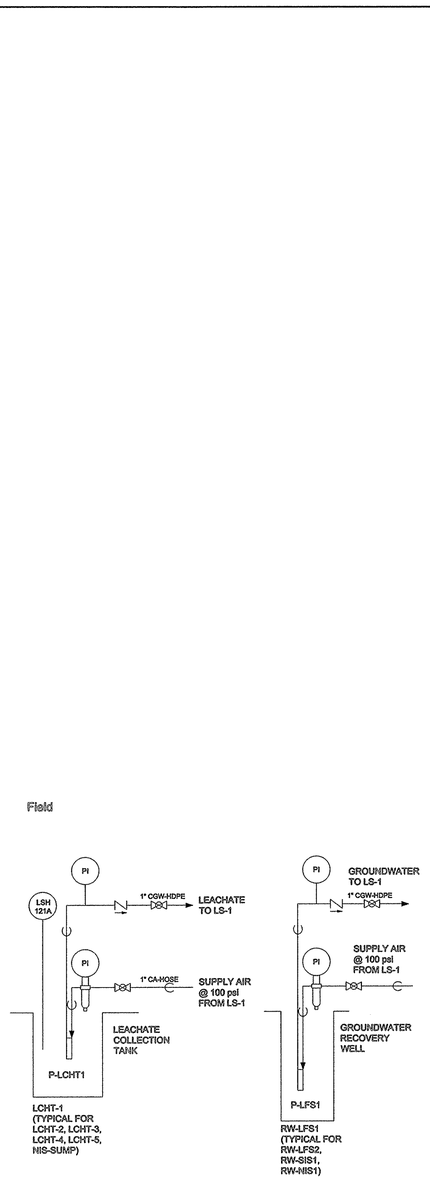
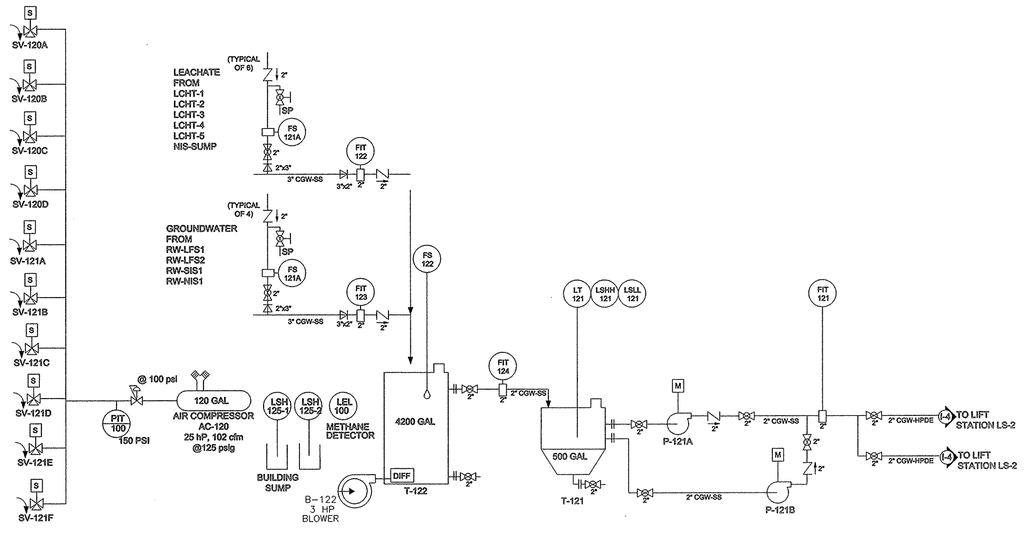
PROJECT NO.	AutoCAD 2010
05-165 SEABOARD	PROCESS-FLOW-DIAGRAM.DWG

DRAWING NO. I-2
REV. NO. 4
SHEET 2 OF 8

Field





LIFT STATION LS-1

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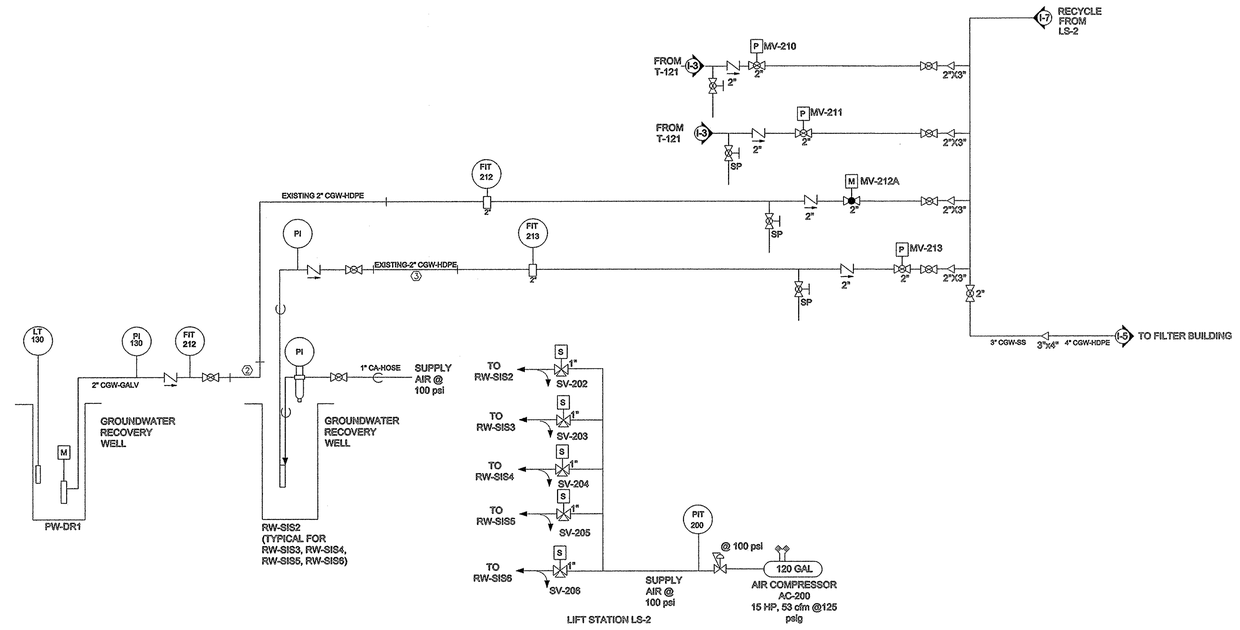
DRAWN BY	PROJECT ENGINEER
M. BROWN	R. GLOVER
DESIGN ENGINEER	PROJECT MANAGER
S. LUCAS	J. LARUE

MECHANICAL TREATMENT PROCESS AND INSTRUMENTATION DIAGRAM

DRAWING NO. I-3
REV. NO. 4

SCALE	DATE
NTS	JUNE 28, 2013
PROJECT NO.	AutoCAD 2010
05-165 SEABOARD	PROCESS-FLOW-DIAGRAM.DWG

SHEET 3 OF 8



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M. BROWN	R. GLOVER
DESIGN ENGINEER	PROJECT MANAGER
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MECHANICAL TREATMENT PROCESS AND INSTRUMENTATION DIAGRAM

DRAWING NO. I-4

REV. NO. 4

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NTS	JUNE 28, 2013
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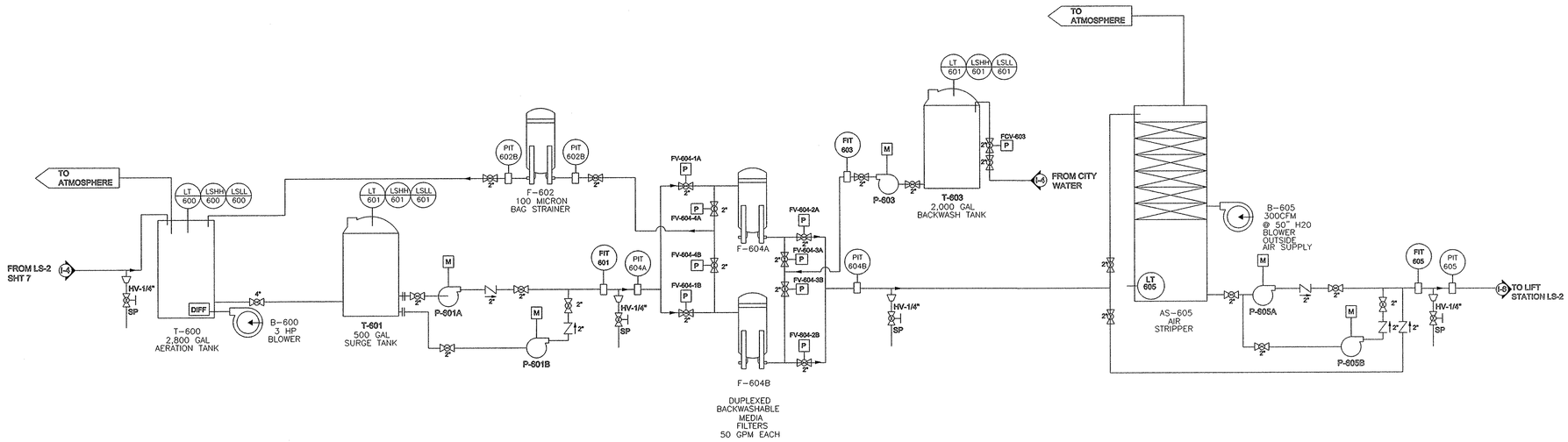
05-165 SEABOARD	PROCESS-FLOW-DIAGRAM.DWG

SHEET 4 OF 8



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FORMER SEABOARD CHEMICAL FACILITY/
RIVERDALE DRIVE LANDFILL SITE

SEABOARD GROUP II — JAMESTOWN, NC

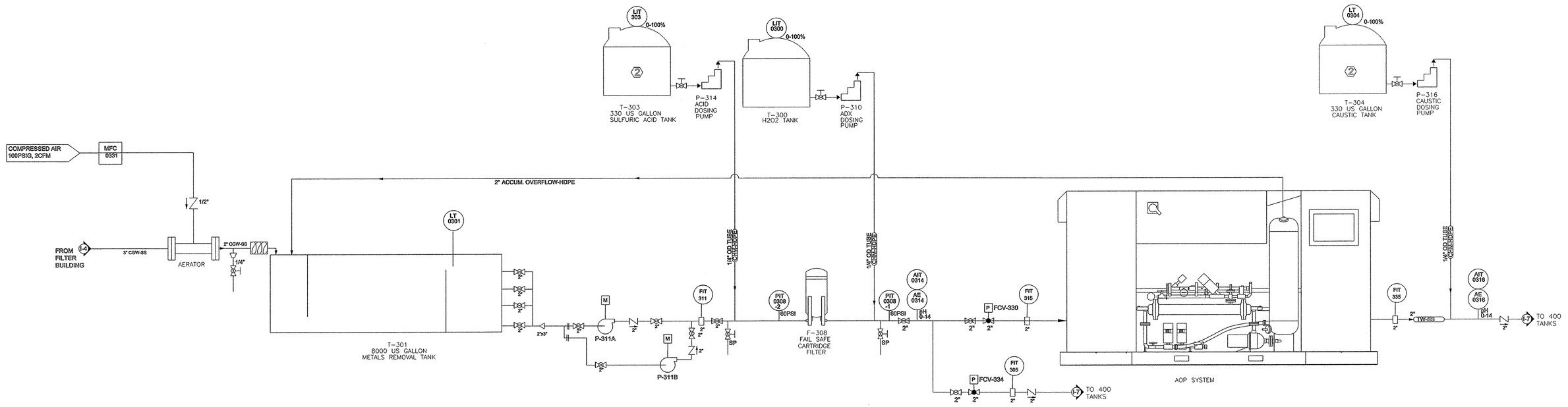
DRAWN BY	PROJECT ENGINEER
M. BROWN	R. GLOVER
DESIGN ENGINEER	PROJECT MANAGER
S. LUCAS	J. LARUE

MECHANICAL TREATMENT PROCESS AND INSTRUMENTATION DIAGRAM

DRAWING NO. I-5
REV. NO. 4

SCALE	DATE
NTS	JUNE 28, 2013
PROJECT NO.	AutoCAD 2010
05-165 SEABOARD	PROCESS-FLOW-DIAGRAM.DWG

SHEET 5 OF 8



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REMEDIATION SYSTEM DESIGN DRAWINGS
FORMER SEABOARD CHEMICAL FACILITY/
RIVERDALE DRIVE LANDFILL SITE

SEABOARD GROUP II — JAMESTOWN, NC

DRAWN BY	PROJECT ENGINEER
M. BROWN	R. GLOVER
DESIGN ENGINEER	**PROJECT MANAGER**
S. LUCAS	J. LARUE

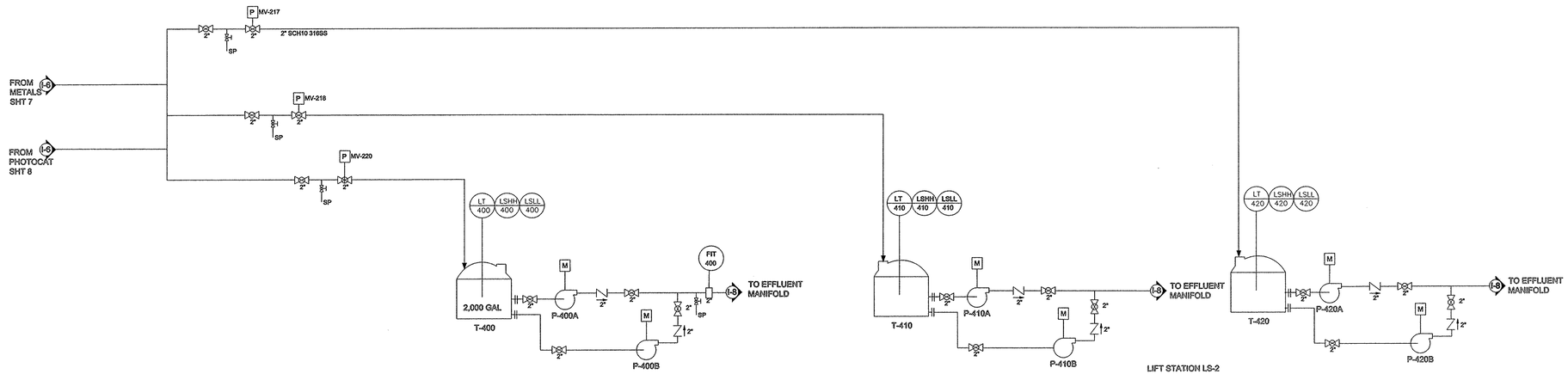
MECHANICAL TREATMENT PROCESS AND INSTRUMENTATION DIAGRAM

SCALE	DATE
NTS	JUNE 28, 2013
PROJECT NO.	**AutoCAD 2010**
05-165 SEABOARD	PROCESS-FLOW-DIAGRAM.DWG

DRAWING NO. I-6

REV. NO. 4

SHEET 6 OF 8



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DESIGN ENGINEER	**PROJECT MANAGER**
S. LUCAS	J. LARUE

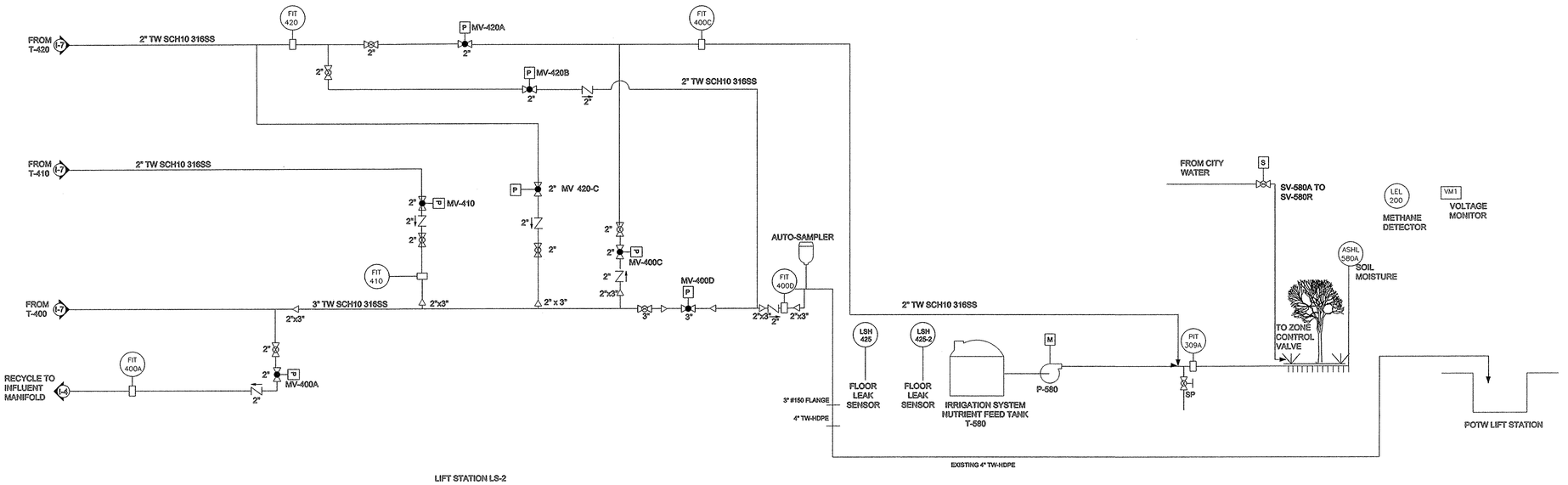
MECHANICAL TREATMENT PROCESS AND INSTRUMENTATION DIAGRAM

SCALE	DATE
NTS	JUNE 28, 2013
PROJECT NO.	**AutoCAD 2010**
05-165 SEABOARD	PROCESS-FLOW-DIAGRAM.DWG

DRAWING NO. I-7

REV. NO. 4

SHEET 7 OF 8



LIFT STATION LS-2

NOT FOR CONSTRUCTION - FOR BIDDING PURPOSES ONLY

CHEMTECH ENGINEERING, INC.
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Telephone: (205) 339-0689 Fax: (205) 339-4487

NO.	DATE	APPR.	REVISION	NO.	DATE	APPR.	REVISION
0	12-14-09	S. Lucas	FOR CLIENT REVIEW				
1	5-18-10	S. Lucas	FOR BID PACKAGE SUBMITTAL				
2	11-10-10	S. Lucas	FOR PRE-CONSTRUCTION REVIEW				
3	6-20-12		PER INSTALLATION				
4	6-28-13		PER REQUESTED MODIFICATIONS				

REMEDIATION SYSTEM DESIGN DRAWINGS
FORMER SEABOARD CHEMICAL FACILITY/
RIVERDALE DRIVE LANDFILL SITE

SEABOARD GROUP II — JAMESTOWN, NC

DRAWN BY	PROJECT ENGINEER
M. BROWN	R. GLOVER
DESIGN ENGINEER	PROJECT MANAGER
S. LUCAS	J. LARUE

MECHANICAL TREATMENT PROCESS AND INSTRUMENTATION DIAGRAM

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